WHAT IS THE VALUE OF MASTER LIMITED PARTNERSHIPS?

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ABSTRACT

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A Master Limited Partnership (MLP) is a pass-through structure available primarily to companies involved in the exploration, development, production, processing, refining, or transportation of natural resources. This paper will evaluate the policy impact of MLPs and whether the structure has met the expectations of policy makers in three critical areas. First, this paper will evaluate the consequences of permitting natural resource MLPs for Federal tax revenues. Second, the impact of MLPs on the oil and gas industry and the wider U.S. economy will be evaluated. Finally, this paper will consider the effects on corporate governance from adopting the MLP structure. These three areas will be discussed in the context of arguments made in favor of MLPs during the late 1980s when lawmakers questioned the need for the structure.

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Brief Background of the MLP Structure and Reasons for Analysis

Master limited partnerships are an important corporate structure in the oil and gas industry but is not widely understood by the investing community. This section will describe the structure of MLPs as mandated by legislation as well as common contract agreements that MLPs adopt to entice investors. This section will also detail the financial and legal histories of the MLP structure and the interaction between these two spheres that created the modern MLP.

Master limited partnerships at their core are simply limited partnerships that are publicly traded. For companies that are able to organize as MLPs, this provides important tax advantages to potential investors. MLP investors are treated as if they were a direct investor in a limited partnership for tax purposes. This results in tax deferrals and potential reductions in tax that are attractive to investors. The process of deferring tax liability is central to MLPs and explains their tendency to hold assets that generate large cash flows and require minimal maintenance costs. Oil and gas assets, especially pipelines, are well suited for MLP ownership. Deferrals are achieved primarily through how an investor's actual investment in the MLP is treated and how subsequent distributions and income from the MLP is taxed.

The chief difference between a MLP and a regular corporation (C-corporation) is the regular corporation's second layer of taxation. A corporation is taxed as its own entity and pays a corporate income tax before earnings are passed on to investors as dividends that are taxed at the investor's marginal rate. Investors in a corporation never pay a direct tax on the corporation's earnings, but will pay taxes on dividends they receive or for the appreciation of an investment they own. MLPs, as a partnership, are not subject to a corporate income tax. Instead, their owners are liable for taxes on income from their portion of the MLP. Income from an MLP is taxed as personal income. This leads to an opportunity to defer taxes since tax is assessed on

accounting income rather than actual distributed cash flow. Master limited partnerships often pay out distributions that are larger than their stated income. This is due in part to many non-cash expenses which shield the MLP from taxation, but do not restrict its actual cash available to pay out to distributions. Investors pay income taxes on a smaller amount of MLP income than they receive in distributions, effectively delaying tax on the difference until a later date.

MLPs achieve deferral thanks to the tax treatment of returns of capital. In the eyes of the tax code, the MLP must be returning capital to the investor if it is able to pay out more than it earned in accounting profits. This changes the tax basis of the investment. The tax basis of the investment refers to the initial value of the investment less any deductions from returns of capital. A simple example is an investor who pays for $100 of a MLP's stock and receives $8 in distributions from his MLP that reported no income. The distributions would reduce his tax basis from $100 at the start of the investment to $92. If the investor was able to sell his units in the MLP at $100, he would be liable for $8 dollars in capital gains as his tax basis had changed despite buying the units at $100. The investor was able to avoid paying taxes when the actual distribution occurred, but was ultimately liable for the outstanding amount.

Master limited partnerships also share the same governance structure as a normal limited partnership. The partnership is split between general partners and limited partners. Limited partners usual make up the vast majority of a MLP, but have no say in the operations of the company. The general partners control the MLP and are responsible for its operation while limited partners are only entitled to receive distributions. This differs sharply from a traditional C-corporation where shareholders are ultimately in control of the company and elect a board of directors to ensure that their interests are represented.

MLPs are further complicated by additional structures included in partnership agreements to make them more marketable to the investing public. The average MLP operates under many self-imposed constrains well beyond those of a normal limited partnership. These constraints mostly emphasize the best aspects of limited partnerships such as a tax-deferred distribution and assuage its deficiencies surrounding the lack of shareholder control. Three mechanisms are common in MLPs to address these issues and make the MLP units more enticing to investors. MLPs often guarantee a certain portion of their income is actually distributed, use incentive distribution rights to align management and investor goals, and finally take on subordinated shares to protect limited partners and better align management with the interests of the limited partner.

Master limited partnerships are known for their regular distributions, but there is no legal requirement for these distributions to actually be paid. Instead, the MLP's governing documents usually dictate how and when distributions should be paid out. For example, NGL Energy Partner's S-1 filing references how its partnership agreement will affect distributions. The agreement requires that "within 45 days after the end of each quarter… we will distribute all of our available cash to unitholders" (NGL Energy Partners 46). The S-1 also provides a definition for available cash used in the NGL Energy Partners agreement that essentially makes sure the partnership has enough money to remain solvent and continue operations. This guarantee is common for MLPs since it ensures that investors will actually receive tax-deferred distributions. It is unwise from a tax management perspective for an MLP to pay no distribution since investors will still have to pay taxes on the MLP's accounting earnings, but will receive no payout from the company.

Corporate governance is an obvious concern for MLPs and incentive distribution rights (IDRs) attempt to address any potential misalignment between the interests of general and limited partners. IDRs are supposed to incentivize general partners to grow the distribution of the MLP by ensuring that as a distribution grows, a larger portion of the marginal increase goes to the GP as a reward for growing the business. Since limited partners are only entitled to distributions by the MLP, this is designed to align interests of the two types of partners. The NGL Energy Partners's S-1 filing again provides an example of this. NGL Energy Partners has 4 distribution targets where the general partner receives 0.1% of the distribution up to $0.39 per unit, then receives 13.1% of any increases to the distribution up to $0.42 per unit. It will later receive 23.1% and 48.1% of marginal distribution increases at higher targets. This mechanism is similar to the personal tax system where higher-earnings individuals are taxed at higher marginal rates. In this case the general partner replaces the federal government and the limited partner pays the "tax." Investors cede some of their upside to ensure that management is properly incentivized to grow the MLP. An increasing portion of marginal increase in distribution go to the GP rather than the LP.

Only a portion of LP units are sold to the public. The GP will often retain many units as subordinated units. These subordinated units only receive a distribution after a certain amount is paid to regular LP units. These subordinated units vest into regular LP units over a period of time. This mechanism is designed to protect the average investor's distribution from fluctuations. Often a substantial portion of the limited partner is retained as subordinated shares. This means that the general partner will absorb most if not all of a decrease in distribution should the MLP face difficulty in its early years. The NGL Energy Partner's S-1 filing provides for a minimum quarterly distribution of $0.34 per unit. If the company had faced difficulties meeting this

minimum requirement, roughly 6 million units of the total 15 million outstanding would absorb the brunt of the cut. This feature is designed to de-risk the investment to average investors and ensure that management is heavily incentivized to meet a minimum distribution requirement in the early years of the MLP's life.

Master limited partnerships are a relatively new phenomena in United States corporate law. The first MLP was founded in the early 1980s and only vaguely resembled the complex structure seen today. MLPs evolved with the push and pull of financial interest followed by the government's attempt to better regulate them.

The first MLP first traded on the New York Stock Exchange on January 27, 1981. The NYSE had determined that the Apache Petroleum Company (APC), a limited partnership consolidating Apache Corporation's interests in 33 drilling partnerships, could have its partnership units listed on the exchange alongside corporate securities (Metz 1). Apache Petroleum Company's creation emphasized the rationale for MLPs as regular limited partnerships. The first MLP was not inspired by any regulatory change, but by extending the scale of limited partnerships to a much larger level than anticipated by legislators and lawmakers. APC was marketed to the investing public similarly to units sold today. Investors would be shielded from tax as much of their distribution was covered as a return of capital. This opportunity to defer taxes was extremely attractive to wealthy investors at the time since dividends were taxed as income at a top marginal rate of 50%. Some of these investors had already taken advantage of the limited partnership structure by investing in the privately-held individual partnerships before APC was formed. APC increased the convenience of utilizing the limited partnership model and expanded the model to less-wealthy investors. APC's publicly-

traded status meant that securities were widely available with minimal transaction costs and faced SEC scrutiny.

Master Limited Partnerships were first targeted by federal law in 1986. The Tax Reform Act of 1986 attempted to reduce the tax benefit of MLPs to investors by implementing a passive loss rule. Prior to the Tax Reform Act, investors could use losses incurred by a MLP to shield income outside of the business. The Tax Reform Act restricted investors from claiming losses on businesses they were not actively involved in, such as a MLP. Instead, the losses could only reduce tax liability in the same business for a later period. However, the Tax Reform Act also cut the highest marginal income tax rate from 50% to 28%, well below the corporate tax rate of 46% at the time. This made it extremely lucrative for businesses to convert to MLPs as investors were content to avoid double taxation at a 46% corporate rate by paying a tax-deferred 28% income tax rate on MLP distributions.

Lawmakers were alarmed by the growing number of MLPs. MLPs were mentioned in Treasury Department reports as early as 1984 and in congress during 1986 and 1987. A substantial number of companies had converted to MLPs, especially after the Tax Reform Act was signed into law. A debate central to the arguments in this paper took place in Congress during 1987 over whether MLPs had become a mechanism for corporations and the wealthy to avoid taxation. The 100th congress passed the Revenue Reconciliation Act of 1987 which addressed the widening gap in corporate taxes. A section that became IRC § 7704 clarified that publicly traded limited partnerships would be taxed as corporations and gave existing partnerships 10 years to return to governance as a C-Corporation. However, Congress also provided exemptions from this new rule. IRC § 7704 states that publicly traded limited partnerships may retain their tax status as a limited partnership if they derive 90% of their gross

income from qualifying income sources. These sources included investment and real-estate related income such as dividends, interest, and property rents. However, this paper focuses on the other sources of qualifying income: businesses engaged in "the exploration, development, mining or production, processing, refining, transportation (including pipelines transporting gas, oil, or products thereof), or the marketing of any mineral or natural resource." The exception for energy-related businesses created the modern day MLP (while some real estate funds elect to structure themselves as MLPs, most are formed as Real Estate Investment Trusts, another entity that is not subject to corporate taxes). The natural fit of pipeline operations to the limited partnership model, along with the Revenue Reconciliation Act made MLPs engaged in operating pipelines the dominant type of MLP.

Master Limited Partnerships have been left untouched by legislators since 1987. One notable exception has been the passage of the 2004 Jobs Act. The act allowed mutual funds to tax-efficiently invest in MLPs. Mutual funds had previously been restricted to holding no more than 10% of invested funds in MLPs. This percentage was increased to 25% (Mattingly 137). This law has done little to change the workings of MLPs but is extremely important to addressing the value of MLPs. This act opened up MLP investing to a broader category of investors. Today, 65% of MLP units are held by retail investors while the remainder is primarily owned by mutual funds and other investment vehicles. One of the largest barriers to ownership of MLPs has been the complicated tax filings required of investors. MLP investors are required to fill out a K-1 form each year to document their partnership earnings and account for any change in the tax basis of their investors. While many wealthy investors own enough units to warrant the extra accounting inconvenience, average investors do not. The inclusion of MLPs in

a mutual fund means that investors only fill out a much simpler 1099 form associated with the fund. This has increased the "usability" of MLPs for smaller investors.

MLPs have faced unprecedented expansion and challenge with the rise and fall of oil prices. A wide array of economic forces spurred a rapid expansion in the creation of MLPs. Since 2001, the number of MLPs has increased by a factor of 10 while the collective market capitalization of MLPs increased 15x. This has occurred in large part due to the shale revolution that has taken place in the United States. US oil production nearly doubled over the same period while natural gas production increased 25%. Energy infrastructure has expanded through MLPs to meet the requirements of greater production. The shale revolution also saw many companies revisiting the use of MLPs in upstream businesses. While three quarters of MLPs focus on oil and gas transport, newer MLPs such as Beitburn Energy Partners and Linn Energy experimented with MLP models for mature oil and gas assets.

MLPs have also benefited from macroeconomic trends outside of the oil and gas industry. As an asset class, MLPs offer a compelling alternative to traditional yield-driven investments. Historic low interest rates have forced many investors into more risky asset classes in the search for yield. As treasury rates have hovered around 1-2%, many MLPs maintain a 7-9% yield. Investors dependent on investment income for retirement have been forced out of relatively safe bonds and into riskier alternative assets such as MLPs. MLPs have benefited from the influx of new investors as unit prices have been bid up. MLP yields have dropped to historic lows as unit prices have inflated. This has made it easier to expand through issuing new units at impressive valuations. Low interest rates have also assisted MLPs on the debt side of their capital structure. Inexpensive debt has allowed MLPs to lever up and expand by financing at low rates.

The rare coincidence of an energy boom during a period of economic recession has given MLPs a period of impressive growth. However, as these forces subside, the MLP model has been strained under lofty valuations and large amounts of debt. The downturn in energy prices has led many investors to fear that they will lose out in what has been touted as very safe and resilient investment. MLPs have been historically considered much safer than the rest of the energy industry as they engage primarily in midstream operations supported by long term transportation contract agreements. Depressed commodity prices have challenged this thesis and forced many companies to reevaluate the benefits of the MLP model. Commodity prices have directly impacted domestic upstream production and midstream companies have felt the impact of reduced production to a lesser extent.

The MLP model has failed most spectacularly where it's been applied to upstream businesses. Breitburn Energy Partners and Linn Energy are prime examples of this. Both companies have filed for bankruptcy as low oil prices made both companies insolvent. The case of Breitburn Energy has become particularly dramatic as the uglier side of the MLP structure becomes realized. Since investors are liable for paying taxes on their MLP's income, they are also liable for paying taxes on "income" from the cancellation of debt. This occurs when debt is paid back or extinguished at less than par value. In the case of Breitburn, investors may have to pay additional taxes on investments with zero current value as the company will write down a substantial portion of its $3.1 billion in debt. Some parts of the legal system recognize the vulnerability of MLP investors. Judge Stuart Bernstein, the federal judge presiding over the Breitburn bankruptcy case, has approved an equity committee to help represent common unitholders during the proceedings. These committees, which force creditors to pay for representation of equity investors during the trial, are rarely approved by judges. However, Judge

Breitburn noted that the committee should investigate the potential tax liability faced by equity investors (DiNapoli). While Breitburn's case is relatively new, it gives early insight into how unsophisticated investors may be harmed by these heavily-marketed MLP securities.

The downturn has also challenged the efficacy of the MLP model for traditional pipeline companies as well. Mature MLPs struggle to grow as a consequence of their mandate to distribute all available cash flow and the use of IDRs. Kinder Morgan, one of the first major MLPs, shocked investors in 2014 when it announced that it would be unwinding its MLP by repurchasing the company with the Kinder Morgan Corporation. The MLP was very far along in its IDR schedule. A large proportion of marginal increases in distribution were going back to the general partner instead of common unitholders. This made it difficult for Kinder Morgan to raise equity for much needed expansions as investors demanded large premiums to make up for a large proportion of distributions going to the GP. The MLP model, which is supposed to encourage energy infrastructure investments, faces a rising cost of capital from LP investors as the company grows and moves up the IDR schedule. Other major MLPs such as Energy Transfer Partners have pursued similar simplification strategies as they have struggled to continue growth.

Recent turmoil in the energy industry has called into question whether the MLP model is useful to either investors or companies involved in energy infrastructure. It is unclear from the previously mentioned events whether these challenges are simply a market bubble bursting or signs of greater issues in the MLP model. The MLP remains a legally and financially complicated company model that can backfire on those who do not fully appreciate the mechanisms behind it.

Interpreting the Policy Aspirations of MLPs

There is little discussion of the policy rationale behind Master Limited Partnerships (MLPs) due to the history of their formation. MLPs were not created through an intentional act of congress, but instead were an unintended consequence of the nation's partnership laws. Congress took a policy interest on whether MLPs should exist only after they had become well-established in public markets. While no one outlined arguments in favor of the creation of MLPs, congressional deliberations on the "winding back" of MLPs provide a few policy arguments which we can test the public policy merits of MLPs against.

The Apache Petroleum Company's registration of partnership units with the SEC and subsequent exchange listing signaled the start of MLPs. Regulators and policy makers were unconcerned with this development initially as most of the traded units were the LP units of previously-private partnerships that focused primarily on natural resources and real estate. Investors and officials were used to both industries conducting business through pass-through entities. REITs had been around since the 1960s and oil and gas companies frequently put their assets in partnerships. MLPs were not discussed by policy makers until 1984 when they were included in a Treasury Department report to the president as part of a wider discussion on tax reform (Treasury Rept. Vol. I, iii). The 1984 Treasury report noted the importance of oil and gas partnerships to investors for generating accounting losses which were then used as shelter against other income. The report highlights in 1982, "$31.6 billion …losses [were] reported by oil and gas and real estate partnerships, even though partnerships reporting losses in these two industries had positive net cash flow of $7.6 billion" (Treasury Rept. Vol I, 7). The report was critical of what was viewed as preferential treatment of the natural resource and real estate industries noting that "highly preferential tax treatment that benefits only a few selected industries should be

eliminated. This special treatment is undesirable both because it is inequitable and because it violates the principle of economic neutrality. A consistent definition of taxable income would allow market forces, rather than the tax system, to determine the allocation of the Nation's scarce economic resources" (Treasury Rept. Vol I, 42).

The Treasury report recommended a change in the treatment of large partnerships to prevent erosion of the tax base. Large limited partnerships, defined in the report as an organization with 35 or more partners, would be taxed as corporations (Treasury Rept. Vol I, 120). This change would stop investors from using partnership losses to cover income from other sources and would subject the partnership to the same two layers of corporate and individual taxation experienced by C-Corporations. The Treasury Department's recommendations would only be partially implemented. In 1986, H.R. 3838, known as the Tax Reform Act of 1986, would close the loophole where investors could use passive losses from a partnership to cover other income, but left MLPs otherwise untouched. However, the Tax Reform Act also lowered the highest marginal income tax rate below the corporate tax rate for the first time in U.S. history. This made the limited partnership format extremely appealing to any corporation. The first MLPs outside of real estate and oil and gas were established in 1986; 19 of the 38 MLPs formed in 1986 were outside of the natural resource or real estate business (House Hearing 81-926. 29). Sales of partnership units doubled between 1985 and 1986 (JCS 18-87. 4). In an effort to shore up the tax base, Congress had inadvertently reduced the tax base.

Congress revisited the topic of MLPs in 1987. The Subcommittee of Select Revenue Measures, part of the powerful Ways and Means Committee in the House of Representatives, met on June 30th to discuss taxing MLPs as corporations in an effort to increase Federal tax revenue. By 1987, stakes were much higher for MLPs. MLP formation had accelerated since the

passage of the Tax Reform Act which had been designed to reduce the attractiveness of the structure. 41.1% of new equity was being issued as limited partner units (JCS 18-87. 4). However, the oil and gas industry was struggling Tough economics reduced new issues of MLPs but a significant number remained. Congressman Michael Andrews, a Democrat from Texas, echoed the concerns of many politicians from energy-producing states in his opening remarks of the hearing. He warned "that the energy companies in most of the producing states, for example, use MLPs to raise capital for energy exploration and drilling. Many of them would literally have ground to a standstill without this important vehicle. At a time when the industry is already depressed and imports are on the rise, we need to assess the long-range impact any action we take may have on oil and gas exploration and development" (House Hearing 81-926. 5). Congress embarked on its most substantive discussion of MLPs in an environment where domestic oil and gas production appear vulnerable. This environment elevated arguments for the practical need for the MLP structure within the oil and gas industry. Given the ad-hoc origin of the MLP structure, there is little outside of these 1987 discussions regarding what MLPs were intended to accomplish from a policy perspective. Two major lines of questioning emerge from these conversations. First, do MLPs sufficiently differ from corporations in either organization and underlying business that they should be treated differently from a tax perspective? Second, if MLPs closely resemble corporations, are there other pragmatic reasons to continue treating them differently from a tax perspective? Discussions in 1987 frequently involved these questions of fairness and pragmatism.

The question of fairness was already a long-standing issue in corporate and tax law. *Morrissey v. Commissioner* established the resemblance test, which considered an entity to be a corporation if it passes three out of four tests (JCS 18-87. 8). These characteristics were

continuity of life, centralized management, limited liability, and free transferability of interests (Rands. 679-681). Limited partnerships would normally fail all four characteristics. A limited partnership lacked continuity of life since one partner could terminate the partnership in the event of death, bankruptcy, resignation, and other situations. Limited partnerships lack centralized management as well. In a corporation, independent managers are appointed by shareholders to run the organization. In a limited partnership, a general partner mixes control of the organization with their own interests in the partnership. The limited partners had limited liability by definition, however the organization as a whole still failed the test of limited liability (Rands. 680). The general partner is still responsible for debts and other liabilities. Limited partnerships may have free transferability of interest. The free transferability of interests test is complicated for MLPs. In a privately-held limited partnership, limited partnership interest can be specific to the partner and changes in ownership can trigger a termination of the partnership. However, publicly traded partnership units must be uniform and easily transferred for investor to investor. However, the general partner is still unable to transfer their interest without terminating the partnership. If the general partner controls a substantial portion of the total value of the partnership, they are considered a member and the interests are not freely transferable (Rands 682). As of 1987, MLPs would have at most met one characteristic legally. However, these legal characteristics are applicable to a wider discussion of fairness since they provide a template for what defines a corporation. Opponents of MLPs argued that the publicly traded partnerships effectively met all four characteristics. For example, Donald Schapiro, chairman for the tax section of the New York State Bar Association, explained “many of our members would recommend that all MLPs be taxed as associations. They are of the view that MLPs are the economic and practical equivalents of corporations.” Schapiro cautioned against a revision of

Treasury's characteristics of corporations, noting that "such a change however, could sweep many closely held, non-publicly traded, partnerships into the association classification" (House Hearing 81-926. 81). The New York State Bar Association instead opted to identify additional rules to determine if MLPs should be treated as corporations; e.g. the size of the partnership.

The June 30, 1987 hearings before the Subcommittee on Select Revenue Measures considered both issues of practicality and fairness. Roger Mentz, Assistant Secretary for Tax Policy, testified on behalf of the U.S. Treasury for significant reform of the MLP structure. However, Mentz's statements were substantially more lenient toward some MLPs than Treasury's heavy-handed 1984 report. He explains that "I think the 1984 position is too extreme. If you tax all partnerships with more than 35 partners… you will be picking up all the publicly offered, probably plus some" (House Hearing 81-926. 48). The Assistant Treasury Secretary was instead much more concerned with the issue of resemblance. Mentz argues that "an entity that is identical in all economic respects to a publicly traded, exchange-traded, corporation – its shares are on the New York Stock exchange. It has 10,000 employees. It issues stock options in MLP units. It makes acquisitions with those units… I think that entity is for all intents and purposes in a corporation" (House Hearing 81-926.49). Mentz's view still allows for some MLPs to exist as he argues not all of them resemble corporations. Mentz introduced the idea of passive versus active businesses. He explained that "in fact, [supporters] suggested that the MLP sector consists of passive assets that are basically pools of passive investment dollars that pay out a current yield. If that were the case, we would not be so troubled" (House Hearing 81-926. 10).

Roger Mentz's concept of a passive business allowed for exceptions in the broader Treasury recommendation of taxing MLPs as corporations. He explains that "entities engaged principally in developing timber, coal, oil and gas, and other natural resources serve a relatively

passive function, generating income from wasting assets and distributing it to investors" (House Hearing 81-926. 27). This argument suggests that natural resource MLPs, unlike other MLPs, do not economically resemble corporations. These passive MLPs do not require sophisticated corporate-like management and the wasting nature of the assets defines the life of the MLP. However, even this argument of fairness is tinged in pragmatism as Mentz cautions, "given the importance of natural resource development to the nation's security, Congress should consider carefully whether such traditionally noncorporate activities should be subjected to corporate level tax" (House Hearing 81-926. 27). Mentz's criteria for which businesses could remain MLPs differs from criteria ultimately endorsed by Congress. Mentz made a sharp distinction between upstream natural resource activities and derivative businesses such as transportation and refining. He narrows his position once questioned about an exemption for 'energy,' by a committee member: "it is not just the energy industry, but the suggestion is natural resource activities, which… [are] a wasting asset or an income-producing asset, that is not actively managed" (House Hearing 81-926. 34). Mentz is quick to exclude pipelines companies from this definition, as the structure should be reserved for "an entity [that] is basically not a business, not the Boston Celtic, not a gas pipeline with 10,000 employees, but is a passive collection of assets" (House Hearing 81-926. 50). His statement was made before midstream partnerships made up the majority of MLPs.

Several parties pushed against this definition on the basis of both fairness and pragmatism. While the subcommittee heard testimony solely from upstream MLPs, many were hesitant to tighten the definition to exempt only producers of natural resources from the debated ban on MLPs. Chairman Charles Rangel joined Congressman Andrews in his challenge "as to why oil and gas as opposed to natural resources was carved out" (House Hearing 81-926. 50).

Edwin Cain, Vice President of Government Relations at Apache Corporation, adopted a much wider stance, cautioning against interference "in the case of those MLPs that serve the oil and gas industry" since "the MLP has proved itself to be a very promising capital-raising mechanism for an industry that has now been deprived in large part of its historical means of doing just that" (House Hearing 81-926. 270).

The Coalition of Publicly Traded Partnerships challenged Mr. Mentz's characterization of the economics that separate MLPs from corporations. They protest Mentz's position "that MLPs would be limited to 'passive businesses'- every business, including natural resources and real estate, has some very active components. Rather, it was stated that only businesses that generate substantial cash flow and are free of significant investment requirements would be operating in MLP form" (House Hearing 78-130. 288). The ability to generate cash flow without need for reinvestment is an important characteristic. Various industry experts pointed to the unique combination of risk and cash flow that made the economics of a business attractive to MLPs. John. Neafsey, CFO of Sun Co., a domestic oil and gas company, explained that "debt is often very inappropriate for a high-risk venture such as drilling oil and gas wells" while equity's cost of capital did not reflect the income generation of MLP assets (House Hearing 81-926. 280). The Coalition of Publicly Traded Partnerships noted that this economic reality was reflected by the capital structure of MLPs where "it is rare for an MLP to have more than a 50-50 debt to equity ratio, and most have far less" (House Hearing 78-130. 288). Ultimately, this definition of risky, but cash flow generating business criteria, won over criteria based on strictly the passive nature of underlying assets. This is evidenced by the decision in 1987 to exempt all aspects (production, processing, transportation, and storage) of natural resource companies from the

wider corporate taxation of publicly traded partnerships as part of the Revenue Reconciliation Act.

Proponents of continuing partnership taxation for all natural resource MLPs relied more heavily on arguments of pragmatism than fairness. First, supporters of MLPs argued that they provided benefits to investors and to public markets. Supporters also contended that an MLP for oil and gas companies had important economic effects for the country. Arguments for the investor and market benefits of MLPs focused on the exposure to new assets MLPs provided as well as the transparency of the structure. Economic arguments touted the risk/reward profile of MLPs that better reflected the oil and gas industry. They echoed the argument that the domestic oil and gas industry needed the structure to survive during downturns in the cyclical oil and gas industry.

Apache provided the congressional committee with a humanizing view of their investors. Edwin Cain of Apache Corporation, discussed the profile of an average Apache Petroleum Company investor. He stated that "the average investor owned less than $5,000 in APC units with listed occupations as teacher, retiree, bank teller, and truck driver" and refuted the popular view of MLPs as a tax shelter for the rich: "large individual investors were a rarity" (House Hearing 81-926. 270). John Chapoton, a former holder of Roger Mentz's office, argued more broadly that MLPs are "the only way small investors could enjoy direct investment and direct taxation" (House Hearing 81-926. 258). MLPs in his view had simply taken a business which was previously reserved for wealthy, sophisticated investors and provided access to all investors. Mr. Chapoton cautioned Congress to avoid falsely assuming that "corporations and MLPs are the only relevant taxpayers" explaining that "this ignores the fact that there are many other single-taxed entities that compete in the capital market with corporations and MLPs (House Hearing 81-

926. 258). Further, these other single-taxed entities; primarily debt and privately-held partnerships are available only to sophisticated investors. Roger Mentz himself had made similar arguments on the basis of the asset type. Small investors did not historically have access to naturally declining (wasting assets in Mentz's terminology) contained in drilling partnerships. MLPs leveled the playing field between investors of different means which provided small investors with benefits only the wealthy had enjoyed before.

Corporations who had built an MLP for assets argued that they were an important signaling tool to capital markets. Investors did not properly value assets within the corporate form such as drilling partnerships. MLPs highlighted the MLP-ready assets from the rest of the business and resulted in a boost in valuation that better reflected the real economics of the assets. John Lollar, president of Transco Exploration Company, told the committee that part of his company's rationale for selling MLP units was "to put a spotlight on the exploration and production side of Transco's business, an area in which we felt we had received a little recognition" (House Hearing 81-926. 283) John Teyden, a Vice President at International Paper Company, said that his company decided to use the MLP for the same reason. He went into additional detail for how the MLP structure raised valuations. International Paper Company owned timberland assets to service their paper operations. Valuation of the timberland asset suffered "because the economics of timberland ownership were so closely entwined with IP's manufacturing operations and investors did not have the opportunity to understand the economics of timberland ownership as a separate business" (House Hearing 81-926. 326). This was the case since this asset, like drilling partnerships, had historically been owned by private investors. A pure-play security allowed investors to better view the timberlands asset separate

from the business. This allowed businesses to more-efficiently value assets and were an important lever for management to use to raise valuations.

MLP advocates also mentioned benefits that were not exclusive to the investing public. MLPs can help reduce the risk to corporations by providing them with a structure that better fits their assets than debt. This helps industries avoid a boom and bust cycle that over-leverage can promote. The industry context of 1987 also lent credence to the argument that the domestic oil and gas industry depended on the MLP structure to survive. Congress was sensitive to the importance of the domestic oil and gas industry as oil prices had reached an all-time high in 1980 of $100.67 real April 2017 dollars per barrel (EAI Short-Term Energy Outlook 2017. The high cost of energy and the resultant economic turmoil exemplified the macroeconomic consequences of the oil industry in the minds of policy makers. John Lollar, President of Transco Exploration, argued that support was important considering "trends that are all going in the wrong direction, declining domestic production, declining reserves replacement, hardly any rigs working, increasing consumption, increasing imports, and increasing imports from the Middle Eastern countries" (House Hearing 81-926). Mr. Lollar said that it would be short-sighted to eschew support of domestic oil and gas even as the government was searching for new sources of revenues. He thought "that is no way to help keep this country out of energy supply problems in the 1990s" (House Hearing 81-926. 283). Domestic oil and gas requires constant capital raising to maintain production, through good and bad times. MLPs provided a lifeline to the industry when it was cut off from debt markets and when equity was far too dilutive due to depressed stock prices.

The early adopters of MLPs in the oil and gas industry testified that MLPs were a valuable structure for providing incremental capital with less risk than debt. This is important for

reducing the riskiness of oil and gas projects, but also reduces the tax loss from MLP conversion. Companies who testified before the committee were virtually unanimous in their contention that project capital structure was a choice between MLP units and debt rather than MLP units and corporate equity. John Neafsey of Sun Co, had a particularly compelling explanation of why his company adopted an MLP structure for its drilling assets. He explains that a drilling company is constantly in need of new capital to regenerate reserves that are depleted each year. This can come from reinvested cash flow, "however, …the amount of cash flow forthcoming from our production operations may not be sufficient to sustain the industry… in good years when the number of opportunities that we have in front of us for investment are abundant, or in bad years such as we have experienced during the year of 1986" (House Hearing 81-926. 276). This forces companies to turn to the capital markets, but "equity … is too expensive to raise money or incremental funds" (House Hearing 81-926. 276). Debt is often partly used in financing, but in his opinion a company "should not be borrowing money from a bank or any source of funds for debt capital in order to proceed with exploratory projects" such as finding new reserves (House Hearing 81-926. 276). Neafsey attributes the inappropriateness of debt to the commodity risk inherent in drilling operations. Even if geologic risk is understood and hedged against, companies are unable to fully guess long term pricing which makes debt unsuitable. He believes that the MLPs will not replace the base corporate business. In the case of Sun Co., the company "continues to own over 97 percent of the MLP units" (House Hearing 81-926. 277). The MLP simply provides an instrument for financing individual projects and sharing risks with investors. Mr. Neafsey provides Sun Co.'s MLP as an example of this risk sharing. In 1986, the MLP distributed $1.76 per unit instead of the projected $2.90. Investors share in much of the risk of the MLP whereas a similar debt investment would have resulted in default. Barksdale

Hortenstine, a partner at Andrews & Kurth, summarized the value prospect of MLPs to managers as providing "them with the highest and best value for their assets so they suffer the least dilution by selling equity, and yet are able to operate free of the risk of default accompanying the issuance of debt" (House Hearing 81-926. 128).

MLP proponents frequently disagreed with traditional thinking on the revenue implications of MLPs, especially those focused within oil and gas. The committee that met in 1987 was formed as part of an effort to search for more Federal revenues. An entity that avoided double taxation was a natural place to look, but advocates argued that treating MLPs as corporations for tax purposes would actually harm revenues or at best have no revenue effect. This argument was based on a combination of the two arguments heard above. First, to the extent that MLPs replaced debt instead of corporate equity, there was no erosion of the tax base. Second, the increase in economic activity spurred by MLPs led to more taxable income overall. Mr. Neafsey of Sun Co. joked that "if we were looking for a means of escaping taxation, this is a terribly inefficient way to do it in that 97 percent still remains to be taxed as a corporation. We were not driven by tax considerations but by the fundamental risk/reward characteristics of this business" (House Hearing 81-926. 277). The majority of MLP units were still held by a corporation which restricted the amount of income that avoided double taxation. Mr. Hortenstine, of Andrews & Kurth noted that MLPs are "not replacing corporate equity, which is subject to two tiers of tax. So it baffles me how there can be any revenue loss under the present system of classifying MLP's as partnerships" (House Hearing 81-926. 130). To the extent MLPs encouraged more activity, they would actually increase tax revenue.

The typical MLP has changed dramatically since the Subcommittee on Select Revenue Measures met in 1987. Pipelines, whose conversion to the MLP structure was once viewed as

evidence of discorporation, have become the predominant business of MLPs. Modern research even explains MLPs as an incentive specifically for energy infrastructure investment. While that may have been part of an overarching concern for domestic oil and gas, the subcommittee members and those who testified were more concerned with the fate of domestic oil and gas production and saw MLPs as critical to the industry's success.

Evaluating the Tax Impact of MLPs

The consequences of MLPs in terms of tax revenue forgone by the Federal government was the most critical issue for the 1987 policy makers and must be an important part of our analysis today. The tax impact of allowing natural resource companies to continue on as MLPs for tax purposes was thought to be minimal, especially given the expected economic benefits. This section will evaluate the tax impact of MLPs today and highlight the importance of tax deferral versus a gross reduction in tax paid. If MLPs have little negative tax revenue impact, it's easy to forgive shortcomings of the structure as there is little opportunity cost to the Federal government.

The Joint Committee on Taxation publishes estimates of tax expenditures related to certain tax policies. In its report for fiscal years 2016-2020 the committee found that tax exceptions made for publicly traded partnerships with qualifying income from energy-related activities meant that the government would forgo $4.9 Bn in revenues over the next five years. They found that exceptions related to the exploration and mining of natural resources would cost an additional $500 MM over the next five years (JCX-3-17 31-23). However, the Committee does not publish their methodology for arriving at certain expenditure estimates. The MLP Association attempted to recreate the Committee's results and found that it was likely derived from "the difference between the tax collected when income distributed to the investor is taxed at both the entity level and the investor level, and the tax collected when it is taxed only at the investor level" (MLP Association *Federal Affairs Committee* 8). This accounts for the gross difference in taxation, but does not provide us with an means of understanding the important of deferral within the structure. The Committee also publishes revenue estimates related to certain tax proposals by the Administration. The Committee found that a proposal to tax fossil fuel

MLPs would generate $1.159 Bn in revenue over five years (MLP Association *Federal Affairs Committee* 8).

Most estimates of the tax loss on MLPs focus on this simple difference between the percentage rates collected in a given year if the entity was taxed as a corporation versus the MLP. For example, a report by Doug Koplow of Earth Track details one method of accounting for the MLP tax loss. Koplow applies two different rates to pre-tax income reported by MLPs for the years 2009 to 2012. In the corporate scenario, MLPs are taxed at the 35% marginal corporate tax rate on all pre-tax income. He then applies a 28% individual tax rate to dividends paid out, which is assumed to be all income remaining after corporate taxes. Koplow found that over the four-year period, MLPs paid $3.4 Bn less in taxes per year than if they were taxed as corporations (Koplow 17).

However, analysis by Aswath Damodaran, a finance professor at NYU, challenges Koplow's findings and introduces an issue on determining the actual tax effects of MLPs. The actual tax rates paid by corporations, corporate investors, and MLP investors are often indeterminate. For the case of the MLP investor, we cannot accurately say what marginal income tax rate the average investor would pay. However, corporations face this uncertainty as well in determining their tax liability. Damodaran highlights this issue in a simplistic analysis of similar income running through both a corporate and MLP structure. In a model where all income is taxed at its highest statutory rates, MLPs enhance the amount of after-tax income investors receive. Damodaran estimates a 15.38% increase for flowing the same income stream through an MLP rather than a corporate structure. However, Damodaran argues that a lower effective tax rate in the corporate model is more appropriate since the weighted average tax rate across corporations is typically much lower than 35%. Also, many investors hold corporate stock

through tax-exempt accounts. Damodaran argues that a corporate tax rate of 27% and a dividends and capital gains tax of 15% are more appropriate to reflect the true taxation of the corporate entity. Damodaran finds here that flowing the same income stream through a MLP and corporate structure results in the investors receiving 3.30% less income in the MLP (Damodaran "The Tax Dance"). The government would actually receive more tax revenue from MLPs than corporations in this scenario.

An informed view of the tax revenue neutrality of MLPs needs to utilize the most likely corporate rates as well as incorporating other factors. MLPs do not just reduce the investor's ultimate tax burden by lowering the overall percentage tax on earnings each year. MLPs achieve a lower effective tax rate through the deferral of taxes across multiple years.

We can construct a model similar to that of Damodaran's and Koplow's by imagining a stream of income taxed across multiple years. In Table 1, $100 dollars of pre-tax income flows through a corporate tax structure that pays out 40% of earnings as dividends and reinvests the remainder at a gross return equal to the investor's cost of capital. In Table 2, the same $100 dollars flows through a pass-through entity which pays out all available cash. The investors pays the top statutory rate for income from the pass-through entity.

We will take a moment to walk through both models. The models assume that the investor holds his investment for a ten year period at which time he sells it and pay the appropriate taxes. The purchase price for the investment is not necessary for calculating the tax consequences of the investment. In the corporate model, $100 of pre-tax income in period 1 faces double taxation. First, $35 dollars are subtracted to pay corporate taxes. The amount net of corporate taxes is then either reinvested or paid out in dividends. We assume a 40% payout ratio, but the ratio has minimal impact on the tax and investor NPV split. Dividends are taxed at the

statutory 20% and the investor receives a cash flow of the dividends after taxes. The amount net of corporate taxes and gross dividends paid is then reinvested at our discount rate. Again, the exact rate is unimportant as long as the reinvestment rate matches the NPV reinvestment rate. If these amounts differ, then the sum of investor and tax NPVs for the corporate and pass-through entity will not match and the two models will not be comparable. In the case of Table 1, reinvested income earns an 8% yield and the marginal pre-tax income flows through the same tax regime in subsequent periods. At the end of the period, the investor sells his stock and has capital gains equal to the total amount of reinvested income since it earns a rate of return equal to the discount rate. The capital gain is calculated as a perpetuity. In the case of a C-Corporation shown in Table 1 the perpetuity is equal to $450 of reinvested income multiplied by its 8% yield, divided by our 8% discount rate, an ultimate value of $450 equal to the marginal investment. This amount is then taxed at the capital gains rate of 20%. The investor cash flow is the sum of capital gains net of taxes in period 10 and dividends net of taxes in periods 1 through 10. In this scenario, it does not matter if the company reinvests through projects or by buying back its own shares as both lead to a greater amount of corporate taxes allocated to the individual investor.

The pass-through partnership model in Table 2 is similar to the corporate model. $100 of pre-tax income is paid out for 10 periods and on the final period the investor sells the investment to realize any capital gains or basis recover. We assume that the company distributes all pre-tax income to investors. The investor pays income taxes on the $100 of the net income of the pass-through entity allocated to her. It is important to remember that they do not pay taxes on the actual cash distribution – this clarification will be useful as we adjust model assumptions. The investor ends up receiving $60 per year from his investment net of income taxes at the highest marginal rate of 40%. The government receives $40 per year.

Table 1: Corporate Model

		Period									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Public Corporation											
Pre-Tax Income		$ 100	$ 105	$ 111	$ 116	$ 122	$ 129	$ 136	$ 143	$ 150	$ 158
Corporate Taxes	35%	35	37	39	41	43	45	47	50	53	55
After Corporate Taxes		65	68	72	76	80	84	88	93	98	103
Dividend Payout	0%	-	-	-	-	-	-	-	-	-	-
Dividend Taxes	20%	-	-	-	-	-	-	-	-	-	-
Dividend After Taxes		-	-	-	-	-	-	-	-	-	-
Reinvested Income		65	133	205	281	361	444	532	625	723	825
Reinvested Yield	8%		5	11	16	22	29	36	43	50	58
Capital Gains											825
Capital Gains Tax	20%										165
Capital Gains After Taxes											660
Investor Cash Flow		-	-	-	-	-	-	-	-	-	660
Investor NPV		$305.80									
Tax Cash Flow		35	37	39	41	43	45	47	50	53	220
Tax NPV		$365.21									
Total NPV		$671.01									
Taxation, %		54.4%									

Table 2: Pass-Through Model

		Period									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Pass-Through Entity											
Distributable Income		$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100
Net Income	100%	100	100	100	100	100	100	100	100	100	100
Income Taxes	40%	40	40	40	40	40	40	40	40	40	40
After-Tax Distributed Income		60	60	60	60	60	60	60	60	60	60
Basis Reduction		0	0	0	0	0	0	0	0	0	0
Capital Gains	25%										0
Investor Cash Flow		60	60	60	60	60	60	60	60	60	60
Investor NPV		$403									
Tax Cash Flow		40	40	40	40	40	40	40	40	40	40
Tax NPV		$268									
Total NPV		$671.01									
Taxation, %		40.0%									

We achieve a very different result than Damodaran when comparing the tax efficiency of the structures across multiple periods. In the example above, the same investment is held over the course of 10 years before being sold by the investor. Both investments produce the same total

NPV: the NPV of the sum of cash flows received by the investor and the Federal government. In the corporate model a greater portion of NPV comes from capital gains at the end of the holding period as 60% of retained earnings are reinvested. However, the percentage share of total NPV, cash that goes either to the investor or to the government as taxes, that investors receive is much greater in the case of MLPs. It should be noted that for Tables 1 and 2, all tax rates are their statutory amounts. If we replace the corporate model's rates with those suggested by Damodaran, the portion of NPV that goes toward taxes is 41.3%, slightly higher than the MLP statutory rate. However, we can make similar adjustments to our MLP model. If we utilize Koplow's recommended rate of 28%, the portion of NPV that goes toward taxes in the MLP model falls to 28% as well. Tables 3 and 4 provide updated NPV splits based on the lower rates that Damodaran and Koplow suggest.

Table 3: Corporate Model with Lower Rates

		Period									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Public Corporation											
Pre-Tax Income		$ 100	$ 104	$ 107	$ 111	$ 115	$ 119	$ 123	$ 127	$ 132	$ 136
Corporate Taxes	27%	27	28	29	30	31	32	33	34	36	37
After Corporate Taxes		73	76	78	81	84	87	90	93	96	100
Dividend Payout	40%	29	30	31	32	34	35	36	37	38	40
Dividend Taxes	15%	4	5	5	5	5	5	5	6	6	6
Dividend After Taxes		25	26	27	28	28	29	31	32	33	34
Reinvested Income		44	89	136	185	235	287	341	397	454	514
Reinvested Yield	8%		4	7	11	15	19	23	27	32	36
Capital Gains											514
Capital Gains Tax	15%										77
Capital Gains After Taxes											437
Investor Cash Flow		25	26	27	28	28	29	31	32	33	471
Investor NPV		$393.55									
Tax Cash Flow		31	32	34	35	36	37	39	40	41	120
Tax NPV		$277.46									
Total NPV		$671.01									
Taxation, %		41.3%									

Table 4: Pass-Through Model with Lower Rates		Period									
		1	2	3	4	5	6	7	8	9	10
Pass-Through Entity											
Distributable Income		$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100
Net Income	100%	100	100	100	100	100	100	100	100	100	100
Income Taxes	28%	28	28	28	28	28	28	28	28	28	28
After-Tax Distributed Income		72	72	72	72	72	72	72	72	72	72
Basis Reduction		0	0	0	0	0	0	0	0	0	0
Capital Gains	25%										0
Investor Cash Flow		72	72	72	72	72	72	72	72	72	72
Investor NPV		$483									
Tax Cash Flow		28	28	28	28	28	28	28	28	28	28
Tax NPV		$188									
Total NPV		$671.01									
Taxation, %		28.0%									

This model is useful, regardless of the rate chosen, because it highlights an issue of reinvestment in the corporate model. Corporate tax is always paid on income, whether or not it is distributed. Reinvested earnings produce even more income, which is then taxed as well before being reinvested. This produces a compounding effect that leads to greater revenues for both the investor and government, but is financed entirely by the investor. In this model the share of NPV received by the government in the form of taxes actually decreases as a greater share of earnings are paid as dividends. However, this is due to the implicit assumption in NPV analysis that you are able to reinvest cash at your cost of capital. The capture of reinvested earnings through additional corporate tax and capital gains undermines the ability of corporations to defer tax relative to MLPs.

MLPs have an arguably more powerful method of tax deferral at their disposal. Over the past 7 years pipeline MLPs, the most prolific and successful sector for MLPs, have reported net incomes that are 60% of total distributions. Table 5 presents updated numbers for $100 dollars of pre-tax cash flow in the pass-through model, this time with a much smaller amount being

reported as net income.

Table 5: Pass-Through Model with Deferral		Period									
		1	2	3	4	5	6	7	8	9	10
Pass-Through Entity											
Distributable Income		$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100
Net Income	60%	60	60	60	60	60	60	60	60	60	60
Income Taxes	40%	24	24	24	24	24	24	24	24	24	24
After-Tax Distributed Income		76	76	76	76	76	76	76	76	76	76
Basis Reduction		40	80	120	160	200	240	280	320	360	400
Capital Gains	25%										100
Investor Cash Flow		76	76	76	76	76	76	76	76	76	-24
Investor NPV		$464									
Tax Cash Flow		24	24	24	24	24	24	24	24	24	124
Tax NPV		$207									
Total NPV		$671.01									
Taxation, %		30.9%									

The share of NPV going to the government decreases from 40% to 30.9% as a greater portion of tax is deferred to the end of the holding period. This dramatic deferral of taxes is often achieved through accelerated depreciation. This accounting process, used by corporations as well as MLPs, allows entities to deduct depreciation expenses that are greater than the actual economic depreciation of capital goods or the required maintenance expenditures. Economic depreciation represents the real decline in value for a given capital good. Often, tax accounting for depreciation leads companies to have capital goods that are worth considerably more than their book value, net of depreciation. This becomes very important when considered in light of maintenance capital expenditures. Maintenance capital expenditures can be considered necessary repairs to account for real or economic depreciation. When accounting depreciation is larger than economic depreciation, a company gets a non-cash expense that is larger than the associated cash outlay. For example, Energy Transfer Partners provides an estimate of distributable cash flow in

their Q1 2016 earnings press release (Energy Transfer). The company expensed $560 MM in depreciation while making real cash outlays of $60 MM for maintenance capital expenditures. The company received a tax shield of $500, net of maintenance costs. This is done to encourage companies to invest in equipment and other capital goods. However, corporations are unable to take advantage of accelerated depreciation to the same extent that MLPs do so. First, depreciation only shields corporate investors from the first layer of taxation as dividends or capital gains taxes could not be avoided through depreciation deductions. The MLP investor pays a single tax on his or her share of partnership income and therefore does not need to pay any dividends tax. Also, the MLP itself is in an advantageous position to handle the long-term tax consequences of deferral through depreciation. Partnerships must pay a special 25% capital gains rate on assets sold above their depreciated value (Gilmore Jasion Mahler). A similar corporate seller must still pay the corporate tax rate of 35% on gains from the sale of depreciated assets, regardless of whether or not some of the gain is depreciation recapture. MLPs, like any other partnership, shield themselves from a greater portion of present taxes, and face less consequences of deferral through depreciation than a similar corporate entity.

Calculating the user cost of capital will help to quantify and refine these ideas of how depreciation and deferral change the effective taxes paid a MLP and a similar corporate entity. The user cost of capital specifically will be useful in a later discussion on how taxation affects the economic incentives in MLP investment. Robert Hall and Dale Jorgenson introduced the idea of the user cost of capital in their work “Tax Policy and Investment Behavior” published in the 1967 American Economic Review. This paper will rely on their framework with clarification from John Creedy and Norman Gemmell’s “Taxation and the User Cost of Capital: An Introduction” which provides standardized terms and equations in calculating the user cost of

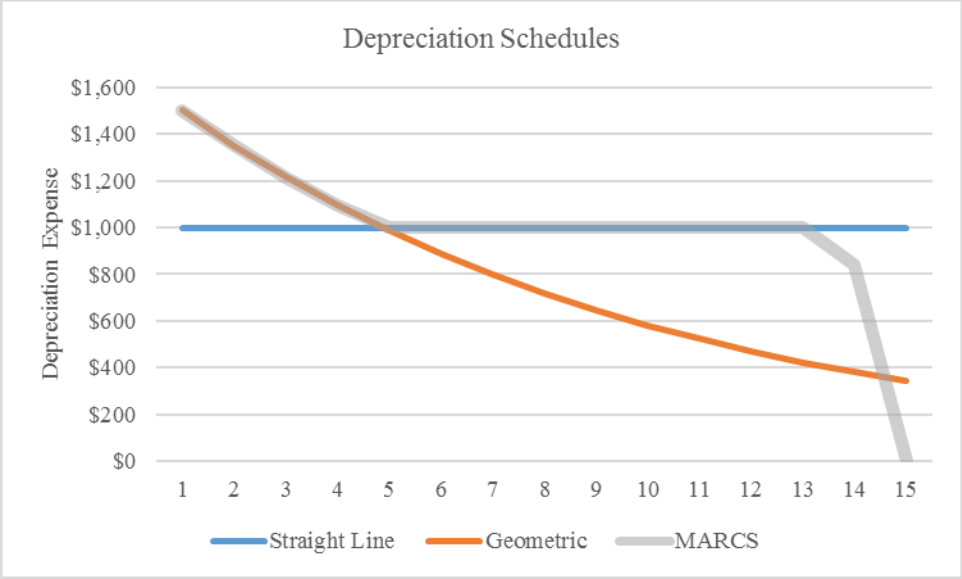
capital. The user cost of capital represents the rate of return for capital in which further investments in capital no longer generate economic profits. User cost refers specifically to the before-tax return of an asset. Economic profit is maximized when this before-tax return is high enough to equal the after-tax cost of capital. At this point, the company has pursued every investment that is above its cost of capital and now generates zero economic profit. The gross user cost of capital (c_g), the after tax cost which includes the economic depreciation (δ) of capital, is defined by the equation below:

$$c_g = \left\{ \frac{i(1-\tau)-\pi}{1+\pi} + \delta \right\} \left\{ 1 - \tau \left(k + \frac{\delta'}{i+\delta'} \right) \right\} \frac{1}{1-\tau}$$

where *i* is the nominal cost of capital, τ is the overall tax (corporate and dividends or individual income) expressed as percentage, π is an inflation estimate, *k* is an investment subsidy, and δ' is the fiscal depreciation allowance. The first bracketed section of the equation quantifies the need for user cost to compensate the operator for economic depreciation of the asset he buys along with his cost of capital, adjusted for tax and inflation effects.

The remainder of equation is more interesting as it discounts the first bracket for the ability of depreciation and tax subsidies to shield the returns of the asset from taxation. The second half of the equation should always be less than one so long as our interest rate is greater than zero, meaning that there is a value to deferring taxes. We will not estimate any tax subsidy, *k*, and will instead focus on how fiscal depreciation allowance affects returns. The present value discount of this depreciation allowance is calculated as $\frac{\delta'}{i+\delta'}$. δ' is an estimate for the geometric depreciation allowance for an asset, or what percent of the assets net value can be expensed each year. Geometric depreciation describes a schedule where a fixed percentage of an

asset's value net of accumulated depreciation is deducted each year. Double-declining balance is a common example of geometric depreciation. The absolute depreciation expense decreases over the life of the asset. As *i* increases, the value of tax deferral through depreciation is greater and the present value discount is larger. However, this formula for the present value discount is useful for understanding the intuition behind user cost, but is not accurate for MLP assets. Pipelines are allowed an aggressive depreciation schedule for tax purposes referred to as the Modified Accelerated Cost Recovery System where companies calculate depreciation geometrically (as a percent of net asset value) before switching to traditional straight line depreciation. This produces a depreciation expense that is larger than the geometric calculation in the later years of the depreciation schedule. The value of the asset, expressed as the asset's current value divided by its book value resembles an exponential function $f(x) = a^t$, where a is a constant that is less than one and t is the number of periods that have passed. However, the exact depreciation function is kinked where the slope of $f(x) = a^t$ is less than the slope from a linear, straight line depreciation schedule. This noticeably increases the amount of depreciation expense in the early years of the schedule. The following graph compares depreciation expense for a $15,000 gross value asset that is depreciated over 15 years. The MARCS schedule maximizes depreciation expense in all periods until the assets depreciable value is exhausted.



The Congressional Budget Office provides their own formula for the estimation of the present value of the depreciation allowance (CBO 2624, 17):

$$z_{dbsl} = \frac{\beta}{\beta + r}\left[1 - e^{-(\beta+r)Y^*}\right] + \frac{e^{-\beta Y^*}}{(Y - Y^*)r}\left[e^{-rY^*} - e^{-rY}\right]$$

where β is equal to δ' and is the expensable percentage in the first phase of MARCS, r is a nominal rate of return, Y is the tax life of the asset, and Y^* is the year when depreciation is switched to a straight-line formula. This equation can be combined with the previous user cost equation to calculate an estimate for the user cost of capital of a business under a corporate and partnership structure. The marginal tax rate for each can be estimated by subtracting the after tax real rate of return divided by the user cost of capital net of depreciation from one. The following page provides key assumptions and calculations for user cost and the marginal tax rate.

General Economic Assumptions		**Source**
Inflation Rate:	1.90%	Cleveland Federal Reserve Estimate
Corporate Tax Rate:	35.00%	Statutory Rate
Individual Income Rate:	40.00%	Statutory Rate
Dividends/Capital Gains:	20.00%	Statutory Rate
Economic Depreciation Allowance:	0.0237	BEA 2003 Estimate (Petroleum Pipelines)
MLP (m)	40.00%	
Corporation (m)	48.00%	
Fiscal Depreciation Allowance		
Tax Life:	15.00	BEA 2003 Estimate (Petroleum Pipelines)
Parameter of Acceleration:	1.50	BEA 2003 Estimate (Petroleum Pipelines)
Expensable Percentage:	0.00%	BEA 2003 Estimate (Petroleum Pipelines)
Annual Recovery Percentage	10.00%	
SL Switch	5.00	
β/(β+r)	0.6598	
exp(-βY*)	0.6065	
exp(-rY*)	0.7728	
exp(-rY)	0.4615	
PV of Depreciation Allowance	0.716789	
Nominal Interest Rate		
Nominal Equity Return	6.53%	Weighted Average MLP Yield
Nominal Debt Return	4.68%	Moody's Seasoned Baa Corporate Bond Yield
Debt %	34%	Bloomberg Estimates of MLPA Members
Nominal Interest Rate	5.91%	
Before-tax Real Interest Rate	3.9%	
Corporations		
After-Tax Nominal Interest Rate	5.16%	
After-Tax Real Interest Rate	3.19%	
Partnerships		
After-Tax Nominal Interest Rate	5.28%	
After-Tax Real Interest Rate	3.32%	
User Cost of Capital (Gross)		
Corporate	7.02%	
MLP	6.76%	
User Cost of Capital (Net)		
Corporate	4.65%	
MLP	4.39%	
EMTR (inclusive of tax paid)		
Corporate	31%	
MLP	24%	

The estimated marginal tax rate for pipeline assets in a corporate entity is 31% compared to 24% for the same assets held within a standard MLP, a 29% increase A more even treatment of MLP assets in both corporate and partnership form confirm the findings of our previous crude model that MLPs benefit substantially from a lower effective tax rate. However, much of this benefit is in the form of deferral. This still represents a cost to the government, effectively providing a subsidize loan to MLP unitholders. The importance of deferral to the tax implications of the MLP structure is also critical to the incentives built into the structure.

Economic Incentives of the MLP Structure

It is unlikely that the Master Limited Partnership structure will ever live up to the goals of policy makers in promoting oil and gas production. Of the 82 MLP Association members, only 12 are involved in upstream operations (MLP Association "Current MLPA Members"). This section will investigate how, if at all, the MLP structure contributes to the oil and gas production. We will also charitably interpret the expectations of policy makers and investigate if and how MLPs benefit energy infrastructure investment. Based on previous findings, this was not the intention of the structure, but is a benefit that is mentioned in contemporary policy discussions (Sherlock & Keightley). This section will also evaluate whether or not incentives to invest in energy infrastructure are necessary.

Upstream MLPs have historically suffered from even greater cyclicality than their corporate counterparts despite typically operating low-cost, mature assets. The following section will discuss the incentives behind this behavior. Alerian, a provider of MLP data and indices, tracks 19 upstream MLP IPOs since 2000. Of these 19, 2 resemble mineral royalty trusts which are slightly different than regular upstream operators. One company, Sanchez Production Partners, holds some royalty interests and producing assets, but derives most of its value from a gathering and processing system in Texas. The remaining 16 IPOs resemble upstream operators in an MLP format, the kind of activity lawmakers were hoping to encourage. Three of these companies remain successfully operating today. One company was purchased by its corporate parent, three were purchased by other MLPs that eventually went bankrupt, and the remaining nine upstream MLPs have gone or are going through a bankruptcy. A similar outcome occurred for the early upstream partnerships of the 1980s. For example, Apache Petroleum Company, the

first publicly traded partnership, restructured to a corporate form almost immediately after the exemption was made for natural resource MLPs in 1987 (Apache Corporation).

To the extent upstream MLPs are at all viable, it is because they avoid activities traditionally associated with upstream companies. Supportive arguments for upstream MLPs focus on the structure's ability to effectively manage mature assets. Companies such as Linn Energy focus on secondary and tertiary recovery from existing wells as this reduces cash expenditures and risk to the company compared to primary E&P activities. Byron Ratliff and Kasey Dunn of PriceWaterhouseCoopers review the historical failure and promise of success of upstream MLPs in their article "Upstream MLPs Make a Comeback", published in the *Petroleum Accounting and Financial Management Journal*. They argue that "long-lived reserves – those with lifespan of 10-20 years or more – make attractive portfolio selections for upstream MLPs. Ideally, the assets chosen will have low capital expenditure requirements, as well – for example, fields that are already in production or that can be placed into production easily" (Dunn and Ratliff 40). This argument is embodied in the second and third wave MLP IPOs since 2000. A focus on mature assets combined with more sophisticated commodity hedging instruments was supposed to provide these new upstream MLPs with stability that was severely lacking in the original publicly traded drilling partnerships. This theory has not held up well given only 3 of these upstream MLPs operate today. Even if a fourth wave of upstream MLPs master management of mature oil and gas assets, the incremental production benefit is likely to be small. Upstream MLPs do not directly contribute to increased production as they focus on assets that require as little maintenance as possible to maintain production.

One could make the argument that upstream MLPs are still an important indirect contributor to production as they remain reliable buyers of mature assets. Normal upstream

corporations can sell mature assets to MLPs and use the proceeds for exploration and development. However, this argument has not been borne out by recent transactions. A study of 35 upstream MLP acquisitions found that "mean seller cumulative abnormal returns are not significantly different from zero at 0.03% and 0.04%, respectively for the [Scholes-Williamson and Market-Adjusted] Models" (Saporoschenko and Stowe 9). Markets provided little credit to corporate mature-asset sellers. This seems to suggest that what should be profitable exchanges for both parties due to differing costs of capital are not deemed especially impactful to the corporate upstream companies. This is likely due in part to the timing of upstream MLP purchases. Upstream MLPs, lacking the ability to internally finance purchases, rely on debt markets and their own unit valuations to acquire new assets. Upstream MLPs are best equipped to purchase assets when the entire industry is doing well and when corporate E&P companies have little difficulty finding funding on their own for exploration and development of reserves.

MLPs' contributions to upstream development is unsustainable as well as weak. Dunn and Ratliff argued in 2010 that new upstream MLPs could succeed where others had failed due to a focus on mature assets, the emergence of modern commodity hedging, and disciplined distribution policies. However, these forces have not been strong enough to maintain modern upstream MLPs. Ultimately, upstream MLPs fall apart due to their constant need to distribute cash flow, whether or not it has really been earned. Falling unit prices create a vicious cycle for MLPs since they have no means of internally financing acquisitions or other capital projects. Upstream MLPs require lofty unit valuations to continue expanding. The fastest route to a poor valuation would be cutting distributions. Upstream MLPs are forced to maintain high distributions by taking on debt when organic cash flow is insufficient. MLPs have a perverse

incentive to lever up when shrinking cash flows would normally call for a more conservative approach.

Upstream MLPs would be tax-inefficient if they adopted a less aggressive distribution policy. The previous section demonstrated that the deferral of taxation rather than a difference in gross rates explains a large portion of the structure's attractiveness from a tax standpoint. Pipeline MLPs successfully exploit the MLP's deferral advantages by paying distributions well in excess of stated net income. However, this strategy is not feasible for the average upstream company. Dunn and Ratliff note that "traditional E&P companies…re-invest close to 100 percent of their cash into new production" (Dunn and Ratliff 37). However, MLPs that hold mature producing assets have failed to fully utilize the structure's deferral advantage as well.

A critical component of the ability for midstream MLPs to defer taxation is the manner in which depreciation is treated. Pipelines are able to move a large portion of their depreciation tax shield forward in time due to the aggressive MACRS depreciation schedule. Pipelines recognize accounting depreciation far larger than real economic depreciation, which we will equate to maintenance capital expenditures. Maintenance capital expenditures are often distinguished from growth capital expenditures by MLPs. Maintenance capital expenditures maintain the value and usability of assets. The simplifying assumption here is that maintenance capital expenditures should match real economic depreciation since real economic depreciation represents the actual change in asset value, presumably due to wear and tear and the resultant decline in productivity. Since MLP investors are taxed based on accounting income rather than distributed cash flow, the pipeline MLP achieves deferral as it recognizes more accounting expense than actual cash costs. This accounting tactic is not available to upstream companies. Upstream companies' most valuable assets are their reserves. Reserves, like pipelines, are capitalized and then depreciated.

However, the depreciation expense associated with energy reserves occurs at the moment economic depreciation occurs. Reserve depreciation, referred to as depletion, is tied to the production out of the reserve. For example, let's assume that an upstream company spends $10,000 to develop reserves on which they believe there are 1,000 recoverable barrels of oil. Capital costs are allocated at $10 per barrel of oil. If the company produces 100 barrels of oil off of this reserve they recognize the product of production and capitalization per barrel in depletion expense (100 barrels multiplied by $10 depletion per barrel equals $1,000 of depletion expense). Consider the fact that the upstream company likely wants to replace its reserves so that the company can continue producing similar amounts in the future (for the upstream MLP this is necessary to maintain a distribution through organic cash flow). If the company wishes to replace the 100 barrels of oil produced, it will spend $1,000 in capital expenditures assuming no improvements in development ability. These capital expenditures can be thought of as maintenance capital expenditures as they are necessary to replenishing the value of the reserves. Maintenance capital expenditures equal depletion cost so there is no ability to defer. This example also assumes a steady state upstream company. If the upstream MLP wishes to grow distributions it needs to grow production and it would accelerate taxation as it recognizes more accounting income than it is able to distribute to investors.

It seems odd in hindsight that upstream companies would argue so passionately for a structure that poorly fits their operations. Upstream companies were the vocal proponents of MLPs when Congress considered the issue in 1987. However, at this point in time the MLP system was relatively new and investors and operators likely did not understand the full implications of holding upstream assets within an MLP structure. Industry proponents saw the

downturn occurring in 1986 for oil producers as reason to keep the MLP structure rather than sign of the structure's failings.

It is important to note that Congress also removed a very important rule that helped MLPs manage cyclical downturns. The ability to deduct passive losses made drilling partnerships a valuable commodity, even in downturns, as these partnerships often produced large accounting losses without requiring any additional payments by the partners. The unitholders received a tax shield just for holding a drilling partnership unit. The Tax Reform Act of 1986 introduced additional rules for passive losses of MLPs. As discussed in the legal section of this paper, Congress believed that wealthy investors were using passive losses from MLPs to shield income from other sources. Congress removed the ability to deduct passive losses from other sources of income which likely reduced demand for MLPs.

The MLP structure has had little effect on upstream production and will likely have little impact in the future. However, the MLP structure has transformed the pipeline industry as almost every major pipeline company is structured as an MLP. Of the MLP Association's 82 members, 52 identify as midstream companies. The remainder of this section will look at how the MLP structure affects midstream investment and analyze the economic impact of any marginal increase in investment due to the ability to structure activities as an MLP.

Philip Swagel and Robert Carroll address the effects of the MLP structure on midstream investment in their research paper titled "The Impact of Changes to the Tax Treatment of Master Limited Partnerships," The paper, sponsored by the MLP Association, evaluated the impact that forcing MLPs to convert to corporations would have on midstream investment. The researchers conducted a similar user cost analysis to the one performed in the tax section of this paper and find that the marginal effective tax rate would increase from 20.6% to 30.1% should MLPs be

taxed as corporations. This corresponded to an increase in the cost of capital from 5.7% to 6.4% for pipeline companies, a percentage increase of 8.5%. The researchers argue that this increase in cost of capital would decrease investment in the midstream space. They use an estimate for the elasticity of fixed investment from Djankov, Ganser, McLiesh, Ramalho, and Shleifer of -0.835. Thus, the 8.5% increase in cost of capital would decrease investment by 7.1% in MLP companies. However, this might be a slightly high estimate for two reasons. First, the previous section's user cost of capital model found a smaller change in the cost of capital. The user cost of capital model found that the net cost of capital (comparable to WACC as it considers the tax effects of debt) increases from 4.39% to 4.65% for MLPs and corporations respectively.

The second issue is Swagel and Carroll's selection for an estimate of the elasticity of fixed investment. The -0.835 estimate was based on statistical analysis of the historical relationship between corporate tax rates and manufacturing asset investment. Midstream MLPs and their assets face several differences from the typical asset that may make pipeline investment less sensitive to changes in cost of capital. Midstream MLPs often purchase already constructed and active pipelines from their sponsors or other companies. This makes the relationship between organic investment and the MLP's cost of capital less sensitive. A higher cost of capital may reduce the MLP's willingness to pay high multiples for an asset, but if the pipeline was constructed by another party for reasons outside of an eventual sale to an MLP, the organic investment would remain the same. A corporate constructor of pipelines does not necessarily factor in an eventual sale of the pipeline to an MLP in determining whether or not to build a pipeline. Swagel and Carroll also misapply the elasticity estimate taken from Djankov, Ganser, McLiesh, Ramalho, and Shleifer. The five researchers calculate their figure "at the mean of our tax and investment variables, the comparable elasticity using the first-year effective rate is -

0.835" (Djankov et al 47). The elasticity estimate reflects the sensitivity of investment to changes in the first year effective tax rate. Pipeline assets should be less sensitive than other assets to changes in tax rate given their ability to better utilize depreciation allowances to defer taxes. Pipeline investment's sensitivity to tax changes is considerably less than their sensitivity to cost of capital due to deferral. Keep in mind that both the corporate and MLP structure can take advantage of depreciation deferral. Finally, all interstate natural gas pipelines are regulated by the Federal Energy Regulatory Commission (FERC). FERC controls the construction of interstate pipelines, granting route monopolies and controlling rates. Oil pipelines are regulated to a lesser extent, though FERC may regulate rates if it deems a threat of monopoly pricing power. We would expect cost of capital to have less impact to investment in an industry where most investment is constrained by regulatory approval rather than competitive forces. FERC constrains investment by awarding monopolies on certain routes to avoid construction of too many pipelines. FERC also requires pipelines to have a significant portion of capacity contracted out before construction begins.

One can also question the economic rationale of encouraging pipeline investment in the first place. The arguments made for upstream MLPs highlighted the energy security that domestic production brought to the country. This argument was especially powerful in the 1980s as lawmakers grew increasingly worried about the Middle East's stranglehold on energy supplies. However, pipeline investment represents a far less critical issue. In fact, research by the Department of Energy suggest the pipeline investment plays a limited role in modern energy infrastructure. A 2015 study of natural gas infrastructure found that "the incremental increase in interstate natural gas pipeline expansion and associated investment is modest, relative to historical capacity additions. The projected rate of interstate pipeline capacity expansion in the

scenarios considered in this analysis is lower than the rate of historical capacity additions over the past 15 years" (DOE, 31). The study notes two factors that contribute to a reduced need for pipeline investment. First, natural gas supply in the US is more geographically diverse than in previous decades thanks to the shale revolution. Natural gas discoveries such as Marcellus shale in Pennsylvania mean that supply is located closer to sources of demand such as electricity generation. The DOE concludes that this will reduce the need for additional interstate pipelines in the future. Second, the DOE notes that there is an opportunity to increase "utilization of capacity that is not fully utilized in existing interstate natural gas pipelines" as well as to make modest, incremental expansions to existing pipelines (DOE 31).

This section has shown that MLPs are poorly suited to facilitate any expansion in oil and gas production. The structure's requirement for consistent distributions does not fit the business model of most upstream companies. The argument that MLPs could own and operate mature, producing oil and gas assets does not encourage any significant amount of incremental production. The argument has largely been disproven by the failure of second and third wave upstream MLPs as well. We then considered the contemporary argument that MLPs encourage energy infrastructure investment. There are two components to this argument. First, that it is important to encourage energy infrastructure in the same way that it is important to encourage domestic production. Second, that MLPs can actually incentivize such investment. The shift to localized oil and gas production that is closer to sources of consumption reduces the need for pipeline expansion and therefore pipeline investment. However, it is difficult to deny the importance of energy transportation, especially as the US relies increasingly on natural gas for electricity generation. The second component of this argument is difficult to fully determine as well. MLPs are likely less critical to energy infrastructure than some proponents may suggest.

Midstream investment is sensitive to many factors outside of cost of capital given the complicated regulatory environment that MLPs operate in.

Governance Concerns of MLPs

Investor media generally views MLPs favorably. MLPs are presented as a critical asset for Americans considering retirement planning. The MLP Association presented the investor case for MLPs in written testimony submitted to the House Committee on Ways and Means in 2013. They explain that "according to surveys done by some of our members, the majority of the investors providing this capital – up to 80 percent – are individual investors" (MLP Association, 3). They also note that "many of the investors are seniors – roughly 75 percent are over the age of 50" (MLP Association *Written Comments* 3). The MLP Association notes that MLP units can achieve two important investing objectives for Americans looking to retire. First, MLPs are typically stable and safe investments. Second, they provide a reliable income stream to investors. The MLP Association states that MLPs are "a relatively secure income-oriented investment providing a reasonable return, something that is hard to come by in today's market" (MLP Association 3). As such investors view this asset class similar to a growing perpetuity. MLP securities trade almost entirely based on yield with the exception of some relatively new MLPs which provide a variable distribution. Most upstream MLPs have even embraced this characterization of a yield instrument, arguing that their mature, producing assets afford them the ability to pay steady distributions similar to a midstream MLP. This emphasis on yield is thought to be useful to investors as it provides a unique investment opportunity at a time when most corporations no longer pay large dividends. However, we will see that this may have unforeseen consequences.

Many financial professionals have argued for providing companies with a tax-efficient method of distributing dividends. Proponents of dividends often cite two distinct arguments for the practice. Dividends alleviate agency and information flow problems by constraining cash

flow and signaling respectively. Dividends provide valuable signaling benefits about the health of the company and confidence of management to pay a certain dividend for a long period of time. Signaling from dividends is much stronger than from share buybacks as the distribution is more transparent and often assumed to be an ongoing practice, whereas stock buybacks are often issued on a case by case basis. MLPs fulfill this need for a tax efficient means of distribution since distributions are not directly taxed. This is an improvement over the corporate system where dividends and capital gains are taxed at the same 20% rate. Corporations have significantly reduced dividends in favor of buybacks and reinvestment as it defers taxes to the investor. The total value of share buybacks eclipsed the value of dividends distributed in 1999 as corporations recognized the tax liability they created for investors (Damodaran "Dividends and Taxes" 19). However, corporations and their investors arguably lose an important channel of communication.

There are few discussions about the signaling effect of distributions or dividends as it relates to MLPs. A.J. Mandell addresses this issue in a wider paper on MLP equity valuations. Mandell provides some tests to evaluate information asymmetry between management teams and outside shareholders. He measures idiosyncratic return volatility and bid-ask spreads as a percentage of unit price for 47 MLPs whose assets were part of a publicly traded parent. Mandell compares these metrics over 200 day trading periods before and after the formation of the MLP for the initial parent and the new MLP. Mandell finds that idiosyncratic return volatility defined here as volatility adjusted for the size, leverage, performance, trading volume, volatility in trading volume, age, and volatility in revenue is 1.8% lower for the MLP versus the previous parent structure. However, this is not a statistically significant finding. Bid-ask spreads were 12% lower, but this also was not a statistically significant finding. Mandel concludes that these

results still provide modest support for the idea that MLPs result in improved information flow to outside investors relative to C-corporations (Mandell 47).

It is important to distinguish the provided measures for information asymmetry from actual information asymmetry. Idiosyncratic return volatility and bid-ask spread may not properly reflect information flow to outside shareholders, especially when comparing corporations and MLPs. We will explain a few reservations regarding this methodology and provide an alternative measure of information flow in MLPs. One issue with these specific measures is that they are highly correlated. Market making activities, which dictate the bid-ask spread for a security, are sensitive to volatility of the security. Market makers take greater risks holding securities to provide liquidity in more volatile markets and would be compensated through greater bid-ask spreads independent of information flow. This methodology also ignores the actual flow of information between companies and their shareholders. One would expect information asymmetry to be adjusted for when management shares information with shareholders that change their view of the company, such as at earnings reports and distribution announcements. At these critical events, investors rapidly incorporate new information and also judge the relative signaling value of the information. If MLPs reduce information asymmetry due to greater signaling tools, one should be able to measure this increase in the effectiveness of these tools.

Gideon Saar and Lei Yu (2002) caution against the use of price impact in measuring information asymmetry. They note that, “one of the problems is that even if these methodologies capture only real permanent price changes, these can be due to uncertainty about investors or other factors that affect the risk premium and not necessarily due to information asymmetry about future cash flows” (Saar and Yu 30). This argument is especially important to MLPs where

the investor class is so distinct from the rest of the market. One should expect MLP securities to be less volatile than their corporate counterparts as most of the investors holding MLP units are looking for retirement income and do not hold these units for speculative purposes. There are also higher costs associated with selling an MLP unit than just paying capital gains on a corporate security. These costs include basis recovery, taxed at a marginal income rate normally higher than capital gains, along with capital gains on the excess amount. Tax complications may make MLPs less attractive to speculators as well. Overall, there seems to be much more concrete structural reasons for MLPs to be less volatile without attributing a reduction in information asymmetry as the cause. In fact, the reduction in idiosyncratic return volatility specifically volatility adjusted for the actual asset riskiness as approximated by revenue volatility in Mandell's work suggests that MLP investors are not effectively incorporating information in the same manner as investors in similar assets within a corporate structure.

A measure of information flow in MLPs should focus on when information is transferred. Moore, Christensen, and Roenfeldt make the case that distributions are critical to information flow as they allow for the signaling of private information. They note what is largely taken for granted today, that MLPs distribute substantially more cash flow than the similar corporation. Moore et al. found that annual dividend yields before MLP conversion were 1.6%, but that initial cash payments for new MLPs implied a 9.5% yield at the time (Moore et al 114-115). Aggressive distribution policies may provide strong signals for management's expectations of earnings (Miller and Rock). Minimum distribution commitments convey confidence about the sustainability of the business model as well.

There are many qualitative reasons to question the signaling benefits of MLP distributions. The MLP structure places grave importance on the distributions paid out. MLPs

trade almost entirely on yield so that cuts in distribution can lead to sharp declines in unit price. This was discussed in a previous section as it pertained to upstream MLPs, however declining unit valuations is a risk for all MLPs, regardless of sector. Most MLPs are contractually obligated to pay out 90 percent of cash available for distributions (Fenn 11). This leaves MLPs with little flexibility to reinvest earnings or to weather difficult times for the business. They depend on high unit valuations to finance capital expenditures for growth. This means that poor signaling from distributions is more than just an issue of unhappy unitholders; MLPs' unit valuations are critical to their operations.

Corporations face a less extreme version of this issue as they have multiple financing options outside of unit or debt offerings. There is typically less importance placed on distributions which provide corporations with more leeway to cut distributions when economics dictate. However, MLPs face a perverse incentive to maintain distributions right up until they cannot. We will discuss Linn Energy in greater detail below, but its bankruptcy highlights this perverse incentive. Moody's Investor Service noted as early as 2012 that Linn's leverage situation was tenuous, noting that they had spent "3.40 in debt for every $1 in net new equity" (Moody's Investor Service). However, the company continued borrowing and total debt reached a high of $10 Bn in 2015, three times greater than its market capitalization as of December 2014. This amount only lowered in late 2015 and 2016 as some of the debt matured and the company went into bankruptcy (Bloomberg). Moody's noted in 2012 that existing unitholders would likely be fully repaid in a few years. However, management acted against the interests of all shareholders by dangerously levering the company up to maintain distribution growth. Units purchased near the date of bankruptcy would have lost their investment with little compensation in the form of distributions. The responsible action in the face of a looming bankruptcy would be

to cut distributions and conserve cash. However, MLPs cannot repurpose distributions toward staying solvent because to do so would leave them with no ability to finance through additional unit offerings. In the case of Linn, the company was issuing additional shares as late as 2015 and was extremely dependent on these offerings. From its IPO in 2006, to its final secondary offering in 2015, the company on average raised proceeds from secondary offerings equal to proceeds from the Linn IPO every year. Investors in these later offerings certainly did not benefit from management's decision to increase leverage to maintain distributions

MLPs depend on their valuations to finance the growth and sometimes the maintenance of their assets. In turn, distributions are critical to maintain a valuation that offers the company a sufficiently cheap cost of capital by satisfying investors' demand for yield. Distributions are less a sign of confidence than one of desperation in times of challenging economics. This is especially true in more commodity-sensitive MLPs, where depressed revenues may not cover operating expenses and maintenance capital expenditures, much less any form of distribution or growth capital expenditures. MLPs have been overly-optimistic about the health and stability of their distribution programs to shareholders. For example, Linn Energy was criticized by Hedgeye Risk Management as well as other investors for its accounting of commodity derivatives. Kevin Kaiser, the head energy analyst at Hedgeye, argued that Linn Energy was inflating adjusted EBITDA due to its accounting of derivatives (Hedgeye Risk Management 24). Linn Energy, like many companies asked investors to look at adjusted EBITDA when judging company health. Adjusted EBITDA is a non-GAAP measure that is often designed to increase comparability between periods by ignoring one-time expenditures and non-cash expenses. Linn Energy deviated from industry norms in its hedge accounting which led to an inflated adjusted EBITDA number. Linn would hedge commodity exposure by purchasing puts and would amortize the

premium paid for the puts over a period of time. Amortization of the premiums paid was not deducted from EBITDA. However, when it came time to sell the derivatives, Linn would record a realized gain for the entire value of the derivative contracts as it had elected to capitalize the derivative previously. Realized gains were included in adjusted EBITDA as they represented a real cash inflow. The net result of these accounting practices meant that the cost of Linn's hedging program was never included in adjusted EBITDA. Linn could then assert that they had healthy cash flow that could easily cover distributions. This issue is not limited to Linn or upstream MLPs. Vanguard Natural Resources accounted for its hedges in a similar manner to Linn for a period of time. Kinder Morgan, considered to be the leading pipeline MLP, also faced controversy for underestimating maintenance capital expenditures.

Distribution or dividend proponents also point to the potential to mitigate agency costs. Large distributions reduce excess cash available to managers and in turn reduces the likelihood that managers make value-destroying decisions for their shareholders (Easterbrook 1984). Managers are forced to find funding for new projects in public markets, which increases accountability to investors and makes it more likely that the manager will not invest in poor projects. A lack of excess cash means that the manager will not be excessively risk adverse as well. Managers are often disproportionately exposed to their own company in terms of ownership and career concerns than the average investor, which may tempt them to reduce the riskiness of projects by financing through retained earnings rather than other instruments. The manager destroys value to outside shareholders if personal concerns trump the concerns of the average investor. Admittedly, a corporation can in theory use share buybacks to reduce excess cash in the same manner as MLPs. However, agency costs are important to address since MLPs in practice distribute almost all excess cash. MLPs, as partnerships, are also able to align

interests and reduce agency costs through contractual arrangements outline in their partnership agreements. Larry Ribstein reviews agency benefits of partnerships in his work, *Partnership Governance of Large Firms.* He notes that "partnerships' contractual discipline and incentives can be at least as effective as fiduciary duties in curbing agency costs. Fiduciary duties [associated with C-corporations] require enforcement by derivative plaintiffs and their lawyers who, like corporate managers, may have interests different from those of the owners" (Ribstein 297). This argument is certainly applicable to MLPs where we see that contracts specify minimum distributions and regulate incentives for management in the form of IDRs. 60% of MLP partnership agreements contain specified distribution targets and 68% specify distribution incentives for the general partner (Ciccotello and Muscarella 20).

The fundamental question is whether or not distributions and other contractual terms can replace the direct accountability in a corporation between the shareholder and management. Research has suggested that it can, citing the increase in valuation after the conversion to MLP from C-corporation as a sign of approval by investors (Rao and Krishnan). However, this demonstrates only that investors perceive the MLP format as a cure for some agency costs, not that it actually is one. These studies also face difficulty isolating a reduction in agency costs from other reasons for an increase in valuation. We will instead evaluate some historical consequences that come from the detached relationship of the general and limited partner, evaluate the effectiveness of IDRs in aligning incentives, and investigate if distributions effectively constrain management from making poor decisions for shareholders.

Contractarians argue that contracts between management and shareholders (general and limited partners in our case) can provide fairer and less ambiguous rules of governance than the corporation. This argument is made in part due to the nature of how contracts are made. Frank

Easterbrook and Daniel Fischel pioneer the contractarian argument for corporate governance in their work, *The Corporate Contract.* They argue that contracts are more likely to protect investors from management abuse than the corporation's fiduciary duties, which provide significant discretion to managers. They posit that management and shareholders "would agree unanimously to whatever rule maximizes the total value of the firm. Questions of distribution among investors are unimportant because that just causes the price they pay for their stakes to change. There is no fraud; the rules of corporate governance are open for all to see" (Easterbrook & Fischel 1435). They essentially extend the Efficient Market Hypothesis where securities tend to be properly priced given a large number of investors considering all information to the formation of corporations and other entities. Investors create a market for well-structured and fair contracts and therefore determine what contractual arrangements are marketable.

However, contract formation in alternative entities such as MLPs is often anything but fair. There are significant differences in information and negotiating power between the investor and company. A study of 770 attorneys in California, Delaware, New York, and Pennsylvania found that 56% often represented clients with a majority interest in an LLC, while 20% frequently represented minority interest investors (Miller). Analysis of 85 publicly-traded Delaware LPs and LLCs found that these entities had limited or no provisions that meaningfully constrained management teams (Manesh). Management is often able to exert significantly more power than investors in contract negotiations.

We see a potential risk of lopsidedness in the bargaining power of LPs and GPs. Investment banks play a critical role in shaping MLP deals are often consulted to provide fairness opinions for deals. However, incentives are not effectively aligned. Investment banks generate disproportionate fees from MLPs due to the continual need to raise capital. Table 6

provides a summary of investment banking activity in the energy space, with alternative energy deals removed, based on Bloomberg League Tables. Statistics are provided for common stock deals of corporations and unit offerings of MLPs. It should be noted that not all deals have recorded fee percentages. Total fee numbers were estimated by multiplying the deal size by the percentage fee. While fees from MLPs were smaller than fees from corporations in absolute terms, it is important to consider the relative size of MLPs in the energy space. The market capitalization of MLPs is 20% of the total market capitalization of US-based oil and gas companies (Bloomberg). However, MLPs have generated 43.5% of investment banking fees for equity issues based since 2013 based on Table 6. Banks on average received a larger percentage fee for each MLP deal as well. MLPs hold disproportionate influence over energy investment banking due to frequent fee generation.

Table 6: Energy-Related Equity Offering Investment Banking Activity

	Security Type	
Security Type	MLP	Common Stock
Average Fee (%)[1]	3.23%	2.48%
Total Fees[2]	$ 1,981	$ 2,567
Number of Deals	190	272
Total Deal Size[2]	$ 61,328	$ 103,531

1: Average percentage fee weighted by deal size
2: In millions

Developed from Bloomberg League Tables

Banks are incentivized to stay in the good graces of general partners in order to generate fees from future deals. Enbridge Energy's Alberta Clipper Project (ACP) is a useful case study for the incentive alignment of banks and MLP general partners. This project was designed to handle the growth in Western Canada oil sands production and provide a shipping route to the

Midwestern US. ACP was initially going to be owned and built entirely by the Enbridge Energy LP (EEP) without the involvement its sponsor corporation, Enbridge Corporation (ENB). EEP had a history of financing its own construction projects. However, ENB eventually approached EEP with a joint venture agreement (JVA), seeking a two-thirds stake in the project for $800 MM. The closing of this agreement in 2009 prompted a lawsuit by Peter Brinckerhoff, the trustee of a trust that held EEP units. Brinckerhoff argued that the agreement was financially unfair to EEP unitholders and was forced on the limited partners due to a breach of the implied covenant of good faith and fair dealing by the general partner. This was based in part due to a fairness opinion presented to a special committee formed by the general partner to assess the deal. Tudor Pickering Holt & Co. (TPH), the selected bank, found that the JVA was "representative, in all material respects, of those that would have been obtained by the Partnership in an arm's length transaction" (Brinckerhoff v. Enbridge Energy Company 2011 7).

However, Brinckerhoff's complaint was that TPH had not properly assessed the transaction and pointed to a few issues in TPH's procedure. First, Brinckerhoff notes that this deal was initially proposed in March 2009 when valuations were depressed by the recession. TPH did not update its opinion nor rethink terms with Enridge Corporation. The complaint also noted that TPH's opinion was based on the relative capital contributions of EEP and Enbridge Corporation versus traditional valuation practices such as a discounted cash flow or earnings accretion/dilution analysis. This was problematic since it ignored the fact that EEP had already taken on the project. EEP received nothing for already owning the project nor possessing the rights-of-way that made the project possible. This valuation also neglected the value of the permits and negotiated tariffs that EEP had already secured. The complaint observed that Enbridge payed a 7x EBITDA multiple on its ACP stake, despite the corporation previously

stating that it used a 9x EBITDA for valuing potential pipeline acquisitions (Brinckerhoff v. Enbridge Energy Company 2011 7). This case was eventually dismissed by Delaware's Court of Chancery. They specifically mentioned TPH's role and found that the "valuation methodology and comparable transaction analyses that an investment banker undertakes, however, are properly within the discretion of the investment banker" (Brinckerhoff v. Enbridge Energy Company 2011, 24). They concluded that EEP GP's board of directors had therefore acted in good faith in evaluating the deal.

However, tensions over ACP resurfaced in 2016 after Enbridge Corporation had EEP buy out its stake in the project. EEP bought back Enbridge's interest for $1 Bn after selling the same stake for $800 MM in a 2009 sale (Epstein et al). Brinckerhoff again sued as he argued that this was also an unfair transaction since the value of the pipeline had decreased. Oil prices were plummeting and Brickerhoff claimed that the pipeline had experienced a 20% decline in projected EBITDA. This time, the Delaware Supreme Court found that the EEP GP had acted in bad faith in relying on a fairness opinion from Simmons & Co. (Simmons). The court argued that EEP GP could not "'reasonably believe' that Simmons was professionally equipped to opine on the fairness and reasonableness of the Alberta Clipper transaction" as the "banker … did not consider what Brinckerhoff has alleged to be the most relevant precedent transaction when it was acting under a standard that expressly required consideration of comparable transactions—the 2009 Alberta Clipper transaction" (Brinckerhoff v. Enbridge Energy Company 2017 34). The court also observed that "financial terms were fully baked by the time Simmons appeared on the scene to render a fairness opinion" (Brinckerhoff v. Enbridge Energy Company 2017 35).

The Enbridge example highlights the relationship between investment banks and MLP general partners and sponsors. It is difficult to believe that banks with such strong financial ties

with the general partner can be reliable referees in contract formation, whether it be for partnership agreements or related-party transactions. Banks do not provide critical information to both LP and GP owners, but instead justify the deal established by the GP or sponsor. It is difficult to form fair contracts in an environment where the GP and sponsor hold real power over the LP and also have influence over the most likely referees. The Enbridge case is also a warning of how the GP can maintain an edge over LP owners in contract formation. Gail Weinstein, Warren Wied, Philip Richter, Steven Epstein, Robert C. Schwenkel, and Scott Luftglass provide analysis of the 2017 Brinkerhoff v Enbridge case in a publication for Harvard Law's Delaware Law Series. They note that "importantly, the Enbridge limited partnership agreement ("LPA") was not a modern-form LPA that contained "safe harbor" or other provisions establishing only minimal requirements for the general partner's approval of conflict transactions" which "provides for approval of conflict transactions by an independent conflicts committee based on a subjective judgment about the transaction" (Epstein et al). The Enbridge partnership agreement specified that the GP had to *reasonably* determine that a conflict transaction was still an arm's length transaction which prompted the court to rule in Brickerhoff's favor. The EnBridge case provides us with two important conclusions. First, contracts do not align the incentives of the GP and the LP. Instead, they primarily benefit the GP as the LP has few options for recourse. Second, Epstein et al trace the flaws in MLP contracts to their formation and find that the GP and important potential referees such as lawyers and investment banks work to protect management from investor recourse rather than the other way around.

This is an especially worrying trend when we consider the investors MLPs cater to. As mentioned previously, MLP investors tend to be unsophisticated retirees. Tax implications of holding MLPs mean that a smaller number of units are held by institutional investors relative to

the larger market. This was alleviated in part by the 2004 law to allow mutual funds to hold MLPs, but the trend still persists. The lack of institutional investors mean that there is no concentrated and informed investing interest to help shape contracts and correct for management abuses.

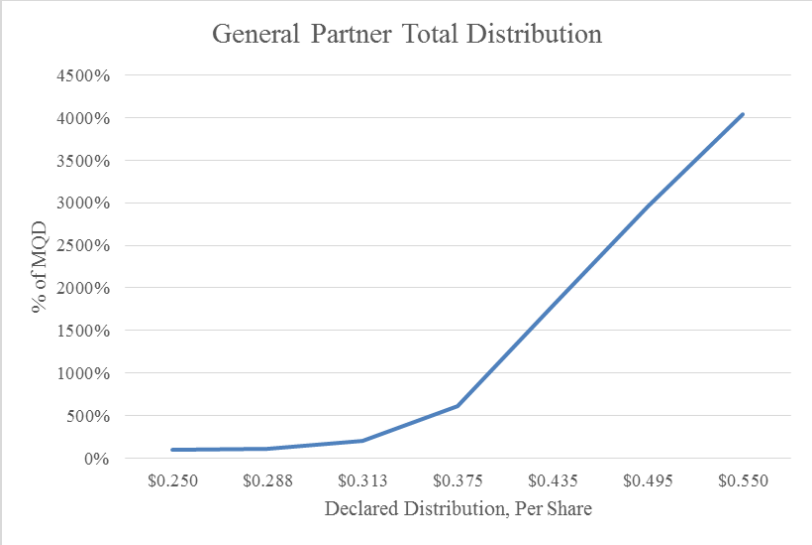
Incentive Distribution Rights (IDRs) are ubiquitous in partnership agreements. These agreements allocate greater portions of incremental distributions to the general partner. The model below provides a simple example of how the declared distribution is allocated between the general and limited partner (Patredis). The example here has the distribution in the top tier of the IDR schedule, where 50% of the incremental distribution goes to the general partner. In terms of distribution growth, this structure appears to be successful. We will discuss a few recent example where some mature MLPs have actually hit the highest GP allocation in the IDR schedule and must mitigate some consequences. However, before doing so, it's worthwhile to investigate if IDRs are imperfect in aligning incentives.

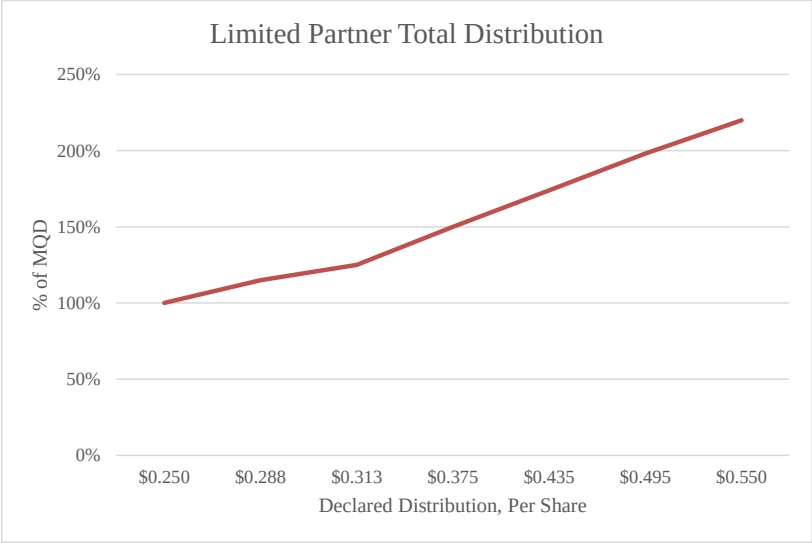
LP Units				**98**								
GP Units				**2**								
			Declared Distribution	$0.5500			**IDR Tier**		**Incremental Cash**		
Minimum Quarterly Distribution (MQD) :	**Lower**		**Upper**			**Incremental Distribution**	**LP Share**	**GP Share**	**LP**	**GP**	**Total**
	-	**to**	**0.2500**	$ 0.2500			98%	2%	24.5000	0.5000	25.0000
Initial:	**0.2500**	**to**	**0.2875**	$ 0.2875	$	0.0375	98%	2%	3.6750	0.0750	3.7500
Tier One:	**0.2875**	**to**	**0.3125**	$ 0.3125	$	0.0250	85%	15%	2.4500	0.4324	2.8824
Tier Two:	**0.3125**	**to**	**0.3750**	$ 0.3750	$	0.0625	75%	25%	6.1250	2.0417	8.1667
Tier Three:	**0.3750**	**to**	-	$ 0.5500	$	0.1750	50%	50%	17.1500	17.1500	34.3000
									LP Total	**GP Total**	
									$ 53.9000	$ 20.1990	$ 74.10
									72.7%	27.3%	

Adapted from Alerian

The IDR obviously makes it in the best interest of both the general and limited partner to increase distributions. However, the general partner has a much stronger incentive relative to the LP to grow the distribution. The following graphs are outputs of the previous IDR model. The graphs plot the total distribution the general or limited partner receive as a percentage of the

initial amount received at the minimum quarterly distribution. This amount changes based on the declared distribution, which is the x axis of the graph.





The most striking observation is the difference in slope between the two graphs. The general partner's distribution is highly convex. While the IDR schedule is obviously discrete, we see that the slope of the GP's distribution increases over tiers. The GP's stake is a function with a positive second derivative while the LP is closer to linear function. We can effectively compare the GP's stake to a real option. This becomes an especially apt comparison at the end of the

subordination period, when the subordinated LP units that the GP holds convert into regular LP units. Here, the GP does face downside, but it is equal to that of the LP. After the subordination period, the GP effectively possesses an option that the LP does not. The conflict of interest this poses is well documented in relation to debt and equity interests. Aswath Damodaran, finance professor at NYU, discusses this issue in the context of a distressed firm (Damodaran "Real Options"). In the distressed scenario, the equity holder has no residual value while the debt holder may recover some amount of their initial investment. This introduces an agency problem due to the limited liability of equity holders and their control of the firm. The equity holder is likely to overinvest as they possess a real option that the debt holder does not. Increasing the volatility behind the real option increases the value of the option and the likelihood that the equity holder recovers some positive value. However, it also reduces the expected recovery of the debt holder since the debt holder participates in less of the upside volatility while remaining exposed to all downside volatility. This is similar to the LP and GP case where the GP holds a relative incentive to overinvest. The GP has a greater upside opportunity thanks to IDRs while having the same downside as LP unitholders once subordinated units vest into full LP units.

IDRs may also pose an agency risk for the limited partner as the distribution reaches the highest tiers of the IDR agreement. Matthew McCabe explores this issue in his work, *Master Limited Partnerships' Cost of Capital Conundrum*. McCabe explains that the marginal cost of capital from LPs increases as the IDR split moves in favor of the GP. MLP projects funded by LP equity require increasingly large rates of return in order to ensure that the project is still accretive to LPs. McCabe provides several ways to resolve this issue. He suggests that the problem can be solved through the outright elimination of IDRs or through concessions by the GP to reduce the cut taken by the GP. Real world results have been mixed. For example, we have

seen unprecedented moves by GPs to ensure the viability of their LP units. NextEra Energy Partners eliminated 75% of their IDRs at no cost to their LP. The GP of Enterprise Products Partners made a similar move in 2002 to voluntarily renounce its IDRs. However, there have also been less positive outcomes for LP owners. For example, the Plains All American Pipeline GP had its LP (PAA) purchase its GP and IDR interests due in part to concerns about the sustainability of the distribution. Robert Coble, Senior Research Analyst at Oppenheimer Funds, notes "PAA and management felt it necessary to lower PAA's payout by 21%, which should have resulted in a 39% reduction to the cash being paid to the GP through the IDR mechanism. However, it appears to us that PAA's GP didn't care for that part of the bargain so instead had PAA's LPs buy its GP and IDR interests for $7.2 billion" (Coble). Alleviating the mature IDR issue runs into similar agency problems as discussed before in the context of contract negotiation. The GP maintains a large amount of discretion in how they handle transactions between the GP and LP. The LP must hope that the GP sees long term benefits to maintaining value in the LP instead of quickly monetizing their investment.

Our discussion of subordinated units as they relate to IDRs also has implications for the minimum quarterly distribution (MQD). The MQD will likely align incentives in the early years of the MLP, however this becomes a less powerful control as the distribution grows in excess of the MQD. Also, the MQD does not have the same effect on controlling overinvestment that some kind of excess cash sweep requirement might have in a corporation. Markets expect MLPs to grow using outside capital. Regular secondary offerings reduce the benefit of public markets getting an opportunity to evaluate investment projects. There is no ability to distinguish capital raises for genuinely new projects from those for ensuring distributions and providing liquidity to the MLP. Also, the relative lack of sophistication of many unitholders reduces their ability to

serve as a check on frivolous investment. To the extent the general partner is comfortable with leverage, they can pursue projects dilutive to LP interests without feeling the direct consequences of a market veto on certain frivolous investment projects.

This section has explored the governance costs of the MLP structure. While MLPs have succeeded to offering a unique, income-oriented instrument to small investors, governance consequences must be considered to determine whether this asset exposure is useful. Governance concerns are especially important given the lack of contractual responsibility between GP and LP. The average MLP investor may not have the knowledge or training to fully investigate the soundness of contracts in protecting their interests. The MLP's effect on governance has been evaluated in terms of its ability to signal important and factual information about the prospects of the partnership and its ability to contract away certain agency cost concerns. Given our analysis, MLPs appear to be represent the interest of investors less than corporations.

Conclusion and Recommendations

Master Limited Partnerships are a complicated structure with a complicated history. In assessing the value of this structure, an interdisciplinary approach is critical to fully understand the consequences of the structure. The value of MLPs comes down to a question of what the structure incentivizes and what it costs society, though allocating tax advantages, to provide these incentives. However, these incentives span topics from corporate governance to reserve decline rates. Ultimately, even the question of what this structure actually costs is a complicated question as was seen in evaluating the tax consequences of MLPs. However, evaluating MLPs from the perspective of tax efficiency, economic consequence, and investor impact helps to unwind some of the complications of the structure and see how these spheres interact. For example, we've observed that the MLPs' status as a pass-through entity affects the ability to defer taxation, but is also critical for incentivizing distributions to unitholders. It also affects reinvestment within the MLP and may restrict what industries are best able to take advantage of the structure. We will take a moment to summarize some of our findings on the value of MLPs and then consider what these findings mean for the future of the structure.

It is important to reassert the framework for valuing the MLP structure. This paper's primary measure for success of the structure is whether or not it has met the expectations of policy makers, specifically the congressmen involved with the Tax Reform Act of 1987. Figuring out what these expectations were in and of itself is an interesting question. Ideally, policy discussions are a reasoned and measured debate where policy proponents calmly lay out legislation and explain why such legislation is necessary or beneficial. The origin of MLPs was not born out of legislation, but through experimentation by Apache. MLPs were reigned in as part of a search for tax revenue when the Federal budget deficit as a percentage of GDP was its

highest since World War II (Federal Reserve Bank of St. Louis). The debate over an MLP exemption for natural resource companies occurred at a time when the price of an imported barrel of oil had plummeted from $61.44 to $31.12 in April 2017 dollars. However, oil prices reached an all-time high just six years before in 1980, when a barrel of oil cost $100.67 in real April 2017 dollars (EIA Short-Term Energy Outlook 2017).

This environment makes it difficult, but not impossible, to interpret the policy intentions of lawmakers when they allowed natural resource MLPs to retain their pass-through tax status. Analysis of committee deliberations arrived at the surprising conclusion that MLPs were envisioned primarily for upstream rather than midstream assets. This conclusion is hard to believe today when the vast majority of MLPs focus on oil and natural gas transportation. However, the policy focus on upstream MLPs is much more reasonable when the fact that only 4 out of 99 partnerships were involved in oil and gas transport is considered (House Hearing 81-926. 200). Arguments for a natural resource exemption centered on the importance of oil and gas production to the U.S. economy and the MLP's critical role in providing a low cost of capital to upstream operations. MLP managers attested to the importance of the publicly traded entity in providing small investors with access to a unique asset and structure that was previously limited to only wealthy investors. Analysis of the congressional hearings prompted the analysis of MLPs from the perspective of their economic impact as well as their usefulness to less-wealthy investors. The tax consequences of the MLP structure must be addressed as well.

MLPs do appear to result in lost tax revenue for the Federal government, although it is a relatively small amount, even with the direst estimates of David Koplow. It is important to consider that MLPs achieve tax-efficiency in part due to investors paying a smaller percentage of income due to the lack of corporate double-taxation. However, deferral of taxation is just as, if

not more important to questions of tax efficiency. The user cost of capital concept provides a way to fairly evaluate deferral achieved through depreciation between the corporate and MLP structure. Evaluating the tax treatment of MLPs is also useful in developing conclusions about what the structure might incentivize.

Tax analysis informed many observations about the economic incentives behind the MLP structure. The MLP structure is poorly suited for encouraging oil and gas production. The structure's limited ability to reinvest earnings due to its required distribution of cash to shareholders. This suggests that MLPs are inappropriate for oil and gas production where a substantial portion of cash flow must be reinvested and distributable cash flow often trails accounting earnings. It is impossible to consider the economic impact of the MLP structure on the energy industry without evaluating its effect on pipelines. The importance of this structure is likely less than major proponents would suggest due to significant barriers to investment outside purely cost of capital concerns. Also, significant changes in the geography of domestic oil and gas production may reduce the need for pipeline investment in the future and therefore the need for midstream MLPs. However, this criticism is by no means definitive given the growing importance of natural gas to electrical production as well as the dominance of the structure among midstream companies.

The investing case for MLPs is weak for the small, individual investor which were supposed to benefit the most from the use of the structure. MLPs have remained important to small, individual investors, especially retirees seeking out income investments. However, while historical financial results are strong for many MLPs, it's unclear that investors benefit in terms of corporate governance relative to C-corporations. It is especially important to consider the fairness of the structure to LPs given the large number of unsophisticated investors. Governance

effects were evaluated based on potential signaling and agency benefits proposed by financial literature. However, many of these supposed benefits do not appear in practice. In reality, the MLP structure and associated contractual terms such as IDRs and MQDs can be harmful to the interests of LP investors. We saw that signaling benefits of a consistent distribution is undermined by the need to maintain a distribution since MLPs finance their operations through issuing units priced on yield. Contractual requirements to distribute virtually all distributable cash flow limits the ability of MLPs to reinvest earnings and to manage risk and there appears to be significant agency risks with the structure. Contractarians argued that access to the partnership structure should be expanded due to the governance benefits of crafting optimal contracts between management and investors instead of relying on the fiduciary obligation inherent to corporations. However, LP investors face a stacked deck and contracts rarely reflect the interest of both the LP and GP. This was seen in both partnership agreements and conflict transactions. Contractual arrangements such as IDRs, which are designed to align interests, may actually encourage the GP to take on greater risk than the LP would like.

Master Limited Partnerships have not provided the benefits desired by policymakers to oil and gas production. Upstream MLPs struggle to manage the business requirements of exploration and production activities with the financial requirements of the MLP structure. MLPs have failed to encourage additional domestic oil and gas production. Upstream partnerships are disproportionately involved in MLP governance failures. The signaling problem appears most dangerous for upstream MLPs where distributions are likely to be comprised of returns of capital rather than sustainable earnings. This problem is amplified by the fact that relatively unsophisticated investors who may not be adequately trained to distinguish between dividends and returns of capital own MLP units. Legislators or industry should prevent the formation of

MLPs in oil and gas production. Upstream MLPs harm investors and damage the credibility of other MLPs.

The case for midstream MLPs and the structure as a whole is less clear. The user cost of capital model demonstrated that tax forgone by the Federal government is directly linked to the cost of capital benefits experienced by MLPs. MLPs likely have a place in the future of the energy industry, although certain aspects of the structure, such as IDRs, should be revisited. Investors should place a premium on MLPs that include a fiduciary duty of the GP toward the LP given the great potential for conflicts of interest.

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